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REV. GEORGE HENSLOW, M.A., F.L.S., F.G.S.

Botanical Demonstrator, and Secretary to the Scientific Committee of the Royal Horticultural Society.

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INDEX TO PROCEEDINGS.—VOL. VI.

PAGE
Meetings of the Society—Annual General—10 Feb., 1880 .. xxxii
,, Ordinary, and of Committees—16 Sept., 1879 .. i
,, ,, 14 Oct. ,, .. v
,, ,, 18 Nov. ,, .. xi
,, ,, 16 Dec. ,, .. xx
,, ,, 13 Jan. 1880 .. xxiv
,, ,, 10 Feb. ,, .. xxviii
,, ,, 9 March ,, .. xlii
,, ,, 23 ,, ,, .. xlvii
,, ,, 13 April ,, .. lv
,, ,, 27 ,, ,, .. lxi
,, ,, 11 May ,, .. lxvii
,, ,, 25 ,, ,, .. lxxv
,, ,, 8 June ,, .. lxxxii
,, ,, 22 ,, ,, .. cv
,, ,, 13 July ,, .. cxviii
,, ,, 27 ,, ,, .. cxxvii
,, ,, 10 Aug. ,, .. cxxxv
,, ,, 24 ,, ,, .. cxli
Shows—Great Summer, June 8th—11th, 1880 lxxxiii
,, Pelargonium Society cxiv
,, Popular Flower, May 17th lxxiii
,, Rose cx
Conversazione lxxxi

PAGE
Evening Fête cxxv
Medals awarded, Rose and Pelargonium Society Shows, cix
Begonias and Pelargoniums certificated at Chiswick.. cxxxiv
Lectures by Rev. George Henslow, .. cxxiv, cxxxiii, cxxxix
„ The Hyacinth and Amaryllis, by Mr. S. Hibberd, 1
„ The Daffodil, „ „ 5
„ The Pelargonium „ „ 12

Scientific Committee—

Acacia, Coccus on cviii
Anthurium Andréanum lx
„ Scherzerianum pygmæum*.. .. lxxiii
Aphides and Wasps xviii
Apple Crop in Melbourne xxiii
Arctotis arborescens ciii
Aristolochia ungulifolia cviii
Ash Root xxx
Araucaria imbricata, male cones of cxxxii
Australian Insect civ
Birch, Japan liii
Broccoli, Pitcher on civ
Bud Variation in Spruce Fir xxvi
Calceolaria, Double civ
Catalogus Plantarum lx
Cattle Poison, Colchicum as a lxxxi
Chionographis japonica lxxii
Chrysanthemum frutescens lx
Coccus on Acacia cviii
Colchicum as a Cattle Poison.. lxxxi
Corydalis Kolpakowskyana xliii
Crocus, New Species of xxxi
Cryptomeria japonica lxxii
Cuscuta reflexa civ
Cypress, Diseased Yew and xvii
„ Injury to lxv
„ Insects found upon lix
„ „ injurious to liv

PAGE
Scientific Committee, *continued*—
  Cytisus Adami lxxxi
  Dionæa Muscipula lxxxi
  Diospyros Kaki xxiii
  Dragon's Blood Tree lxvi
  Electric Light xliii
  „ „ Forcing by liv
  Eria extinctoria * lx
  Etoile d'Or, Chrysanthemum lx
  Eucalyptus, Gall on lxxii, lxxx
  Exobasidium vaccinii cxxii
  Fasciation cxxii
  Fritillaria, sp. lx, lxvi, lxxii
  Fritillary, Malformed civ
  Frost, effects of lxi, lxxi
  Galanthus Redoutei xliii
  Gall on Eucalyptus lxxi, lxxx
  Galvanized Wire and Peach Twigs xxxi, xliii
  Gravel Deposit, Wood from liii
  Habernaria radiata * cxxiv
  Hail and Leaves xviii
  Horse-Radish, Monstrous xvi
  Hoya, sp. lx
  Hybrid Ismenes civ
  „ Pelargonium cviii
  Injurious Insects, Report on lii
  Insect, Australian civ
  „ injurious to Cypress liv
  „ „ „ Larch lxv
  Ismenes, Hybrid civ
  Ivy, Diseased xxiii
  Japan Birch liii
  Kolpakowskia ixiolirioides lxvi
  Larch, Insects injurious to lxv
  Lastrea (Nephrodium) membranifolia lx
  Leaves of Spruces and Silver Firs xviii

PAGE

Scientific Committee, *continued*—
- Lilium nitidum cv
- Masdevallia, Hybrid lx
- ,, Wageneriana lx
- Nephrodium, Lastrea membranifolia lx
- New Zealand Plants, Drawings of xxvi
- Nitrification cxxiii
- Parasite on Sempervivum lxxii
- Peach Blossom malformed civ
- Peach Twigs and Galvanized Wire .. .. xxxi, xliii
- Pelargonium, alleged Hybrid cviii
- ,, Cross Fertilization in xvii
- Persimmon xxiii
- Phylloxera Question .. .. xxxi, lxvi, lxxi, cv
- Pitcher on Broccoli civ
- Planes xxiii
- Plantarum, Catalogus lx
- Puccinia Violarum lxxxi
- Pyrethrum, "Hen and Chickens" var. .. cxxxii
- Pyrus coronaria civ
- Report on Injurious Insects lii
- Roman "Sleepers" xviii
- Root Development xvii
- Roses, The Stapleford Pedigree xvi
- Scilla italica, white var. lxxii
- Sempervivum, Parasite on lxxii
- Silver Fir, Leaves of xviii
- Simethis bicolor cxxiii
- "Sleepers," Roman xviii
- Smoke on Trees, Destructive Action of .. cxxii
- Solanum Dulcamara as a Decorative Plant .. xviii
- Spruce Fir, Bud Variation in xxvi
- Spruces, Leaves of xviii
- Sugar-cane Disease cxxiii
- Trees banked up with Earth cxxii
- Trichonema suavis xviii

PAGE

Scientific Committee, *continued*—
  Trifolium repens (prolif.) cxxxii
  Tulips, various sp. .. .. lxv, lxvi, lxxii
  Unhealthy Condition of Plants lxxii
  Vine Disease xxvi
  Violarum, Puccinia lxxxi
  Wasps xviii
  Winter and the Plants .. .. .. lxi, lxxi
  Wood from Gravel Deposit liii
  Yew, Diseased xvii

INDEX

TO NEW, DESCRIBED, AND CERTIFICATED PLANTS (MARKED WITH *).

PAGE
Abutilon, Purity* xlvi
Acer campestris variegata cxxix
Adiantum aneitense xci
,, Bausii .. .. .. viii, lvii
,, cuneatum dissectum viii
,, mundulum* vii
Æsculus laciniata cxxx
Agave marmorata* iv
Alsophila tomentosa xcii
Amaryllis, Empress of India* xlviii
,, King Arthur* xlix
,, Prince George* lvii
,, Storr's Beauty* xlix
Anguloa Clowesii l
Anthurium Andréanum* lix
,, insigne xcii
,, Schertzerianum pygmæum* .. lxviii, lxxii
,, ,, Rothschildianum* .. lxvii
Aralia elegantissima xci
,, nobilis xcii
Aristolochia ringens cxlii
Asparagus plumosus nanus* cvi
Asplenium Baptistii xcii
Astrocaryum Malybo cxxxvi
Azalea Belle de Roses lxix

PAGE
Azalea Comtesse de Flandre lxix
,, Flambeau lxix
,, Gardeniæflora lix
,, La Rosea lxix
,, Mddle Marie Lefebvre lxix
,, Oswald de Kerchove lxix
,, Roi d'Hollande lxix
,, Rosa Bonheur lxix
,, Triomphe de Wondelghem lxix
Barkeria cyctotilla * xxv
Begonia Anna Ria * cxxxiv
,, Annie Wilkie * cxxxiv
,, A. Hemsley * cxxi
,, Mrs. Arthur Potts cxviii
,, Brilliant cxviii
,, Countess of Kingston * cxx
,, Davisi cxviii
,, Dr. Denny * cxxxiv
,, Dr. Hogg * cxxxiv
,, Emperor cxviii
,, Henry Webb * cxxxiv
,, Le Géant cxviii
,, Lizzie Smith * cxxxiv
,, Lucy Violet * cxxxiv
,, Mary Steele * cxxi
,, Monarch cxviii
,, Mrs. A. Potts cxviii
,, Mrs. H. Coppin * cxx
,, Mrs. Laing * lxxviii
,, Mrs. Sheppard * .. .. cxxviii, cxxxviii
,, Nellie Barron * cxxxiv
,, Nellie May * cxxxiv
,, Reine Blanche cxviii
,, Rosea Grandiflora * .. cxviii, cxx, cxxxiv
Bolbophyllum Beccari cxliv
Brunsvigia Josephinæ cxxxvi
Calamus densus * .. .. .. vii, xcii

PAGE
Calanthe tricarinata * lvii
Calyptronoma Swartzi ii
Camellia Countess of Derby xiv
,, ,, de Hainault xlv
,, L'Avenir xlv
,, Madame Lebois xlv
Campanula persicifolia lxix
Canna Ehemanni * cvi
Capsicum Yellow of Nocerd * cxlvi
Carolinea insignis iv
Castanea vesca Alba marginata cxxix
Carnation Crimson Pet cxxx
,, Lord Chelmsford cxxx
,, Mrs. Teigner cxxx
,, Purple Prince cxxx
,, Sir Archibald Grant * lxxvii
,, Sulphur King cxxx
Cattleya Harrisoniæ i
,, Eldorado virginalis cxxviii
Ceratozamia fusco-viridis xcii
Cereus C. M. Hovey * lxxvii
Chionographis japonica * lxviii
Chrysanthemum frutescens Etoile d'Or * .. lix, lxxiv
,, M. Lemoine * xxi
,, Précocité viii
Chysis Chelsoni xxv
Cineraria Intensity xlvi
,, Master Harold * xlvi
,, Mr. Thomas Lloyd * li
,, Mrs. Thomas Lloyd * xlvi
,, Webbiana xxix
Cockscomb Empress cxliii
Cocos Baptistii xcii
,, elegantissimus * vii
Coleus Allan Chandler cxix
,, George Simpson * lxiv

PAGE
Coleus Majestica * viii
,, Pompadour * cxxxviii
Croton Dodgsoni xcii
,, insignis xcii
,, Rodeckianus xcii
Cœlogyne Massangeana vi
Corydalis bracteata * lxiv
Cyclamen Baroness Burdett Coutts * xxi
,, Brilliant xliv
,, Rosy Morn * xxx
Cycnoches Warscewiczii * vii
Cyphomandra argentea xcii
Cypripedium calanthum * ii
,, Morganianum * cxx
,, œnanthum * ii
,, Spicerianum * vi
,, Warneri cxxxvii
Dahlia Bismark iv
,, Cactus, Yuaiczii, * iii
,, C. Harris cxliii
,, Countess of Lonsdale iii
,, Crimson King iii
,, C. Sheffield cxliii
,, Dora ix
,, Dr. Ranch * cxliv
,, Earl of Radnor iv
,, Ethel Britten * ii
,, E. Newcombe iii
,, George Thompson * viii
,, Gold Finder * cxliv
,, Hercules iii
,, H. Turner iii
,, James Vick * cxliv
,, King of Dwarfs ii
,, Lady Wimborne * cxliv
,, Maximiliana xx

PAGE.
Dahlia Miss Browning ii
,, Monarch iv
,, Mr. Compton * cxliv
,, Mr. Dodds cxliii
,, Oxonian iv
,, Paragon iii
,, Prince Arthur iv
,, Professor Klug * cxliv
,, Purple Prince iv
,, Queen Mercedes viii
,, Queen of Spain * cxliv
,, Queen Victoria ii
,, Revival * cxliv
,, Rifleman iii
,, Rigoletto iii
,, Rising Sun iii
,, Sappho iii
,, Sensation iii
,, Shirley Hibberd cxliii
,, Sir Stafford Northcote cxliii
,, Snowflake iv
,, Sunshine iii
,, Triomphe iii
,, Triumphant ii
,, Victory iii
,, Walter William cxliii
,, William Ady ii
,, White Aster iii
Daphne Blagayana * xxviii
Davallia fijiensis xcii
Dieffenbachia latimaculata xcii
,, Leopoldi .. .. .. xcii, cxxxvi
,, Regina xci
,, Rex xci
Dracæna, Mrs. Turner xcii
Drosera dichotoma rubra ii

PAGE.
Dendrobium bigibbum .. .. .. vi, cxlii
,, chrysotoxum lvi
,, Dalhousieanum lvi
,, densiflorum lvi
,, Devonianum lvi
,, Dominii xxviii
,, endocharis xxv
,, Farmeri lvi
,, Goldiei ii
,, infundibulum lvi
,, Jamesianum lvi
,, japonicum lvi
,, lituiflorum lvi
,, luteolum xxix
,, splendidissimum * xxviii
,, superbiens vi
,, tortile lvi
Epacris onosmæflora nivalis, fl. pl. .. xliv
Eria extinctoria * lx
Erigeron pulchellus * lxxvii
Erythrina marmorata * cvi
Eucryphia pinnatifolia * cxxxviii
Fritillaria Moggridgei lix
Fuchsia Madame Galli Marie * cvi
,, Magnum Bonum cxxviii
,, pendulæflora * xlvi
,, President cxxviii
Geonoma princeps cxxxvi
Gladiolus Anthony Waterer * .. .. cxlii, cxliv
,, Antisthenes cxlii
,, Aquinus * cxliv
,, Ball of Fire cxlii
,, Calliophon * .. .. cxlii, cxliv
,, Dr. Woodman cxlii
,, Mr. Derry cxlii
,, Queen Mary cxlii

PAGE
Gladilous Opiter * .. .. .. cxlii, cxliv
,, Phormis * cxliv
,, Pilumnus* cxliv
Gloxinia Ariadne lxviii
,, Chiswick White * lxviii
,, Eclatant lxviii
,, Prince of Wales * lxviii
Godetia Flag of Truce cxxxvii
,, Lady Albemarle cxxxvii
Gomphrena globosa nana compacta * .. cxxxv
Grammatophyllum Ellisii cxix
Habenaria radiata * cxxiv
Hedera maderiensis * cxxi
Hoya globulosa * lviii
Hunleya Meleagris * lvii
Hyacinth Cavaignac * xlviii
,, Lecture on .. .. .. (Journal) 1
,, Queen of the Yellows * xlviii
Hydrangea paniculata grandiflora cxlii
Hypolepis millefolium * cxxxviii
Illicium religiosum variegatum xcii
Iris Kæmpferi Carnation * cxx
,, ,, Crimson King * cxxxi
,, ,, Delicata * cxx
,, ,, Imperial Wonder * cxx
,, ,, Kosoburo San * cxx
,, ,, Magnificence * cxxxi
,, ,, striata superba * cxx
Ismene Sulphur Queen * cii
Juncus zebrinus xcii
Lælia Dayana superba xi
,, elegans prasiata cxliii
,, flammea lvii
Lastræa Maximowiczii lxxvii
,, Richardsii multifida lxiv
Lilium auratum virginale * cxxxviii
,, ,, platyphyllum * cxxxviii
,, ,, rubrum vittatum .. .. [illegible]

PAGE
Lilium canadense splendens * cxxi
" longiflorum albo-marginatum .. cxxxvi
" nitidum * cvi
" Parkmanni * cxliv
" polyphyllum * cvi
" speciosum gloriosoides * cxxxviii
" " verum cxxxvi
" tigrinum fl. pl. cxxxvi
Lygodium palmatum * cxxx
Macrostylis metallica * cxxxi
Masdevallia polysticta xxiv
" Tovarensis * xxiv
" velifera vii
Maxillaria nigrescens * vii
Melon Dellamore Hybrid * cxxxi
Mignionette Hemsley's Giant White .. lxiv
Miltonia Morelliana superba vi
Mormodes Ocanæ ii
Nanodes Medusæ cxix
Nepenthes atro-sanguinea * lxxviii
" bicalcarata * xxviii
" Outramiana* vii
" Rigleyana * ii
" robusta * iv
" zealanica rubra i
Odontoglossum Cervantesii decorum .. lvii
" hystrix serratum * lxiv
" membranaceum l
" polyxanthum * lviii
" Rossii majus xii
" vexillarium rubrum .. cxxxvi
Oleander Professeur Duchartre * cxxxv
Oleobachia palustris * cxxxi
Oncidium dasytyle * vi
" " aureum cxxviii
" Edwardi * xxi

PAGE
Oncidium Gardnerianum xcii
,, Kramerianum xliv
,, ornithorhyncum vi
,, ,, album cxlii
,, Rogersii xii
,, tigrinum vii
,, varicosum vii
Ophiopogon Jabauran aureo-variegatum .. iii
Pachystoma Thompsoni * vi
Passiflora Hahnii * viii
Pear, Bergamotte Auguste Jurie * cxlv
Pelargonium Attraction * lxxviii
,, Beauté de Lyon cxv
,, Bridesmaid * .. .. cxv, cxvii
,, Clipper * lxviii
,, Constitution * cxvii
,, Criterion * cxvii
,, cucullatum fl. pl. lxix
,, Cynthia cxv
,, Decorator * lxviii
,, Defiance * lxxviii
,, Duchess of Edinburgh .. lxxiv
,, Duchesse de Morny lxxiv
,, Eclipse * .. . .. ci, cxvii
,, Emilie Everard lxxiv
,, Enchantress * cxvi
,, Fascinator lxxiv
,, Formosa cxiv
,, George Beckwith lxxiv
,, George Strudwick lxxiv
,, Gloire d'Orleans * cvi
,, Hayes' Seedling * cxvii
,, Hector cxiv
,, H. Jacoby xxv
,, Jean d'Arc xxv
Kensington cxv

PAGE
Pelargonium Lalla Rooke cxv
,, Lecture on .. .. (Journal) 12
,, Lord Cecil * .. .. cxv, cxvii
,, Lucy Lemoine * cxxxiv
,, Mabel lxxiv
,, Macbeth cxv
,, Madame Thibaut * cvi
,, Maid of Kent lvii
,, Maid of Perth cxiv
,, Minotaur * cxvii
,, Mons. Dubois * cii
,, Mons. Dubus * cvi
,, Mont Blanc * cxxxv
,, Morning Star lxxiv
,, Mountain of Light cxiv
,, Mr. G. Garraway * ci
,, Mr. Gladstone * lxviii
,, Mrs. Arthur Lattey cxv
,, Mrs. Ashby * cxvii
,, Mrs. Moore xxv
,, Mrs. Potten * cxxxv
,, Nancy Lee cxv
,, Prima Donna * .. .. cxv, cxvii
,, Progress * cxvii
,, Rival lxxiv
,, Rosy Morn cxv
,, Ruth Little cxiv
,, Rienzi xxv
,, Sentinel lxxiv
,, Sir Walter Scott cxv
,, Starlight lxxiv
,, Sunrise * lxviii
,, Trophy lxxiv
,, Ulysses * cxvii
,, Vesuvius (sports) xxv
,, West Brighton Gem * lxxviii

AGE

Pelargonium Zulu Belle* cvi
Philodendron Carderi xcii
Phlox Standish's Perfection cxxviii
Picotee Alice* cxxxviii
,, Clara Penson* cxxi
,, Lady Armstrong cxxx
,, Mrs. Rayner cxxx
,, Ne Plus Ultra* cxxxviii
Pilumna fragrans xliv
Pink, white, Mrs. Sinkins* cvi
Plectocomia himalayana xcii
Polyanthus Primula elatior cœrulea .. xlvi
Polystichum lentum* vii
,, tripteron* xlvi
Populus canadensis aurea cxxix
Primula (sinensis) Chiswick Red* xii
,, denticulata, var. rosea li
,, Herman Wilson* lviii
,, Lady Probyn xlv
,, Meteor* xlv
,, rosea li
,, rubra violacea* xii
Pteris serrulata cristata bella* cvi
,, ,, ,, var. ix
Quercus atro-purpurea cxxix
,, Cerris eligantissima cxxix
,, filicifolia cxxx
,, purpurascens cxxx
Rhododendron Flag of Truce* lxiv
,, Snowflake* lxiv
Rhopaloblasta princeps xcii
Rose, Duchess of Connaught* cxxx
,, Duke of Connaught lix
,, Gaston Levêque cxl
,, Mrs. Harry Turner* cxx
,, Mrs. Jowitt* cxxx

PAGE
Rose, Pride of Waltham * cxxi
,, Queen of the bedders viii
Salvia albo-cœrulea xxix
Sambucus racemosus cxxix
Sanseveria aurea marginata xcii
Sarracenia atro-sanguinea cxii
Selaginella involvens variegata .. .. xcii, cxxxvi
Sigmatostalix radicans cxlii
Sophronitis grandiflora xii
Staphylea colchica * xxv
Spiræa Aruncus astilboides xcii
Stelia Bruckmulleri xi
Thrinax barbadensis xcii
Tillandsia Lindeni genuina * vii
Trichomanes parvulum * lxxvii
Trichosma suavis xi
Triconema suavis * xviii
Tropæolum Chameleon cxxviii
Turnip (Purple-top) Early Munich * .. x
Ulmus campestris variegata cxxix
Utricularia Endresii cxix
Vanda cœrulea vi
Verbena Mr. Thompson * iii
Vriesia Falkenbergii xcii
Wallichia zebrina xcii
Yucca filamentosa aurea elegantissima * .. lxxvii

SEPTEMBER 16, 1879.

ORDINARY GENERAL MEETING.

Medals awarded.—Silver Banksian, J. M. Gilkes, for a collection of Asters; Silver Banksian, J. Walker, for a collection of Asters; Silver Banksian, J. Walker, for a collection of Dahlias; Silver Banksian, H. Cannell, for a collection of Dahlias.

This was the last of the fortnightly meetings for the season. Numerous collections of plants and cut flowers were exhibited, the Dahlias being especially fine, and Messrs. Veitch's group of plants attracted general attention owing to the large number of Nepenthes it contained. Messrs. Cannell, Keynes, and Walker were the principal exhibitors of cut flowers. Those from the first-named gentleman admirably illustrated the gradual floral advancement of the Dahlia.

FLORAL COMMITTEE.

J. McINTOSH, Esq., in the Chair.

An extensive and imposing group of plants was exhibited by Messrs. Veitch and Sons of Chelsea. From a bar elevated about six feet above the table were suspended numerous fine Nepenthes in baskets, and below them were arranged Orchids, Crotons, Rhododendrons, &c., the central plant being a handsome specimen of Nepenthes Rafflesiana bearing nearly twenty large pitchers. The Orchids were good, and the most noticeable were the following—Zygopetalum maxillare, with nine spikes of its distinct flowers; Saccolabium Blumei majus, with three long spikes of fragrant delicate-hued flowers; Cattleya Harrisoniæ, very pretty, sepals and petals pale purple, labellum with a crimped margin slightly tinged with the same colour; Odontoglossum grande, bearing seven large and handsome flowers; Lælia elegans, labellum extremely rich bright crimson. The principal Nepenthes that were represented were N. hybrida, N. Chelsoni, N. Wrigleyana, N. Ratcliffiana, N. zealanica rubra, with diminutive pitchers; N. Courti, N. Hookeri, N. intermedia, N. hybrida maculata, N. Sedeni, and N. Kennedyana rubra, all of which vary considerably in the form, size, colour, and markings of their pitchers. Among many other noteworthy plants the bright-coloured hybrid Rhododendrons Princess Fredericki and Duchess of Edinburgh were especially prominent, also the finely variegated Erythrina marmorata, and several Crotons. First-class certificates were awarded for Cypripedium œnanthum, a hybrid between C. insigne Maulei and C. Harrisonianum, the petals and labellum are dark-coloured, the upper sepal being streaked and spotted with dark red, margin white; C. calanthum, small flower, sepals spotted near the base, upper sepal greenish, streaked with dark red; Nepenthes Rigleyana, a hybrid between N. Hookeri and N. phyllamphora, narrow greenish pitchers mottled with red. A special vote of thanks was awarded for the group.

Mr. William Bull, Chelsea, sent several new plants, including Coleuses, Orchids, Palms, and a Drosera, D. dichotoma rubra, for which a second-class certificate was awarded. It differs from the species, as the name expresses, in the red colour of the glandular hairs that cover the leaves. Dendrobium Goldiei, an exceedingly pretty Orchid, bears a spike of small, bright, purplish-lake-coloured flowers, the sepals having a fine margin of white. Calyptronoma Swartzi is a handsome Palm with graceful bright green pinnate leaves. Messrs. J. Keene & Co., Salisbury, exhibited a stand of three dozen Dahlia blooms in superb condition, and including several beautiful varieties. The best were Ethel Britten, florets white tipped and tinged with purple, an excellent form, this received a first-class certificate; Triumphant, bright purple lake, a handsome flower; William Ady, very distinct, pale purple streaked with maroon; Miss Browning, bright yellow. Mr. J. M. Gilkes, Wickham, Newbury, sent cut blooms of Quilled Asters, several of which were very good, but no names were attached. A silver Banksian medal was awarded.

Mr. H. Cannell, Swanley, Kent, contributed an extensive collection of Dahlia blooms representing the bedding, Pompon, Show, and Fancy types, also the single forms. The best of the bedding varieties were King of Dwarfs, very deep purple; Queen Victoria, good yellow; Rising Sun, bright scarlet; Crimson King, very dark crimson or maroon. Among the Show varieties the most noticeable were Rifleman, neat flower, bright crimson; Countess of Lonsdale, large, beautiful in form, pink; Victory, very dark maroon; E. Newcombe, pale yellow; H. Turner, white, with a faint tinge of purple in the lower florets. The Fancy varieties Queen Mab, R. Burns, and Summertide were the best. The best Pompons were Sunshine, scarlet; Snowflake; Hercules, bright pink; Triomphe, good yellow; Sappho, dark crimson; White Aster; Sensation, pale yellow; and Rigoletto, maroon. The single forms represented were Cervantesii, mexicana, coccinea, lutea, glabra, viridiflora, the peculiar green-flowered form; Yuaiczii, the scarlet Cactus Dahlia, for which a botanical commendation was awarded; and Paragon, a remarkably pretty form, the outer florets large, dark maroon in colour, with a light margin. Mr. Cannell also sent a box of Cockscombs and Tigridia Pavonia var. grandiflora, all very good and showy. A cultural commendation was awarded for the Tigridias, and a vote of thanks and a silver Banksian medal were awarded for the entire collection. Mr. R. Lloyd, Brookwood Asylum, Woking, exhibited some seedling Coleuses and a specimen of Ophiopogon Jaburan aureo-variegatum, with narrow variegated foliage and scapes of pale purple flowers. Mr. J. Smith, Edmonton, and Messrs. Rawlings Bros., Romford, each sent collections of seedling Dahlias, some of which were very bright and neat. The former was awarded a vote of thanks. Mr. J. Y. Mould, The Nursery, Pewsey, Wilts, sent cut flowers of Verbenas. A first-class certificate was awarded for the variety Mr. Thompson, flowers large, scarlet with a white centre, and compact truss. Several other good varieties were shown, notably Mrs. Mould and Warren Hastings.

Mr. B. S. Williams, Upper Holloway, exhibited a group of plants, including Orchids, Palms, Ferns, and miscellaneous stove plants. A specimen of Tillandsia Lindeni, claiming to be the true species, was awarded a first-class certificate, but it was referred to Dr. Masters for identification. The bracts are pink, closely imbricate, and flattened out into an elliptical-shaped spike, bearing purplish-blue flowers, affording an agreeable contrast. A similar honour was awarded to Nepenthes robusta, a hybrid between N. Hookeri and N. phyllamphora, very free in growth, and bearing numerous pitchers marked with dark red. A vote of thanks was accorded. Mr. J. Walker, nurseryman, Thame, exhibited an extensive collection of Dahlias and Asters in fine condition as regards colour and form. The best Dahlias were Monarch, very dark maroon; Prince Arthur, good yellow; Earl of Radnor, purplish lake; Bismarck, crimsoon maroon. The best Quilled Asters were Purple Prince, Snowflake, and Oxonian, purple with white centre. A silver Banksian was awarded. A vote of thanks was accorded to Mr. W. Clarke, gardener to J. Raines, Esq., Clapham Common, for Lilium auratum bearing a large number of flowers. Mr. H. Boller of Kensal New Town sent several succulent plants. A second-class certificate was awarded for Agave marmorata, dark green, leaves with whitish transverse bars.

Mr. C. Green, gardener to Sir G. Macleay, Bart., Pendell Court, exhibited flowers of Carolinea insignis, one of the Bombaceæ. The flowers are large, with narrow, whitish, recurved petals and numerous stamens with reddish filaments; it is extremely fragrant. A cultural commendation was awarded. Mr. Green also sent fruit spikes of Gunnera manicata, and flowers of Aristolochia Kæmpferi and Nymphæa Eugénie. A vote of thanks was accorded for the group. A large collection of good seedling Tuberous Begonias was sent from the Society's garden at Chiswick. Many of the varieties were remarkably distinct and the flowers large. A number of fine Asters were also contributed from Chiswick.

FRUIT COMMITTEE.

Henry Webb, Esq., in the Chair.

The duties of the Committee were very light on this occasion. Mr. C. Osman, South Metropolitan District Schools, Sutton, Surrey, sent a scarlet-fleshed Melon not of very good quality. Mr. Hyde, Farnborough Park, was accorded a letter of thanks for a seedling Melon of fair quality named Hyde's Hybrid. Mr. Killick sent a dish of a white transparent Apple, which was characterised by the Committee as very good and deserving of cultivation in every collection; also dishes of Suttons' Magnum Bonum Potato, which Mr. Killick states was the only variety out of forty grown in one field that was quite free from disease; and Suttons' Red Fluke, of which only 5 per cent. were diseased.

OCTOBER 14, 1879.

ORDINARY GENERAL MEETING.

JOHN DENNY, ESQ., M.D., in the Chair.

Elections. — W. S. de Mattos, John Donaldson, Mrs. Dove, Henry Robinson, C.B.

Medals awarded.—Gold Knightian, Lane and Son for a collection of Grapes; Silver Knightian, J. H. Goodacre for a collection of Grapes; Silver Knightian, W. Wildsmith for a collection of Grapes; Silver Knightian, J. Veitch and Sons for a collection of Apples; Bronze Knightian, Paul and Son for a collection of Apples; Bronze Knightian, C. Ross for Pine Apples; Bronze Knightian, W. Allen for Grapes Muscat of Alexandria; Gold Medal, C. Lee and Son for Winter Bedding Plants; Silver Banksian, B. S. Williams for Group of Plants; Bronze Banksian, Rawlings Brothers for collection of Dahlias; Bronze Banksian, H. Cannell for collection of Dahlias.

The exhibits at this Meeting were both numerous and good, and many visitors were most agreeably surprised. In the vestibule Messrs. Charles Lee & Son exhibited a fine and tastefully arranged collection of Coniferæ, Euonymuses, and other hardy ornamental shrubs similar to that of last year, and for which a gold medal was awarded. Near the entrance were Messrs. Lane's magnificent Vines in pots, which attracted considerable attention. In the Council-room were arranged the various collections of plants, those from Messrs. Veitch, Williams, and Bull being especially noticeable; also the extensive collections of fruit from Messrs. Veitch, Paul, Wildsmith, and Goodacre.

FLORAL COMMITTEE.

DR. DENNY in the Chair.

The duties of the Committee were by no means light on this occasion, for very numerous collections of plants were staged. From Messrs. Veitch and Sons, Chelsea, came an excellent collection of new and rare Orchids and other plants, which included the following:—Miltonia Morelliana superba, with large flowers, sepals and petals deep purple, labellum light purple with darker veins—very pretty; a specimen of Cœlogyne Massangeana bearing a large spike of very pale yellow flowers, the labellum being marked with dark streaks inside; Oncidium ornithorhynchum album, bearing a slender branching spike of small white flowers, with a yellow crest in the centre of the labellum; Oncidium dasytyle, a curious little species with small flowers, labellum yellowish with a dark protuberance near the base, and the sepals spotted with chocolate. A first-class certificate was awarded. A peculiar Orchid, Mormodes Ocanæ, flowers borne in spikes, thickly spotted with reddish brown; and Lilium auratum rubrum vittatum, a variety with crimson purple streaks down the perianth divisions. Pachystoma Thompsoni, an attractive Orchid; sepals and petals white, narrow; labellum with narrow recurved portion of a purple lake colour; flowers in pairs on slender peduncles. A first-class certificate was awarded for this and the following:—Cypripedium Spicerianum, flowers small, petals and labellum of a greenish colour, the posterior sepal white marked with purple; a pretty and distinct species. This group was not very large, but of great interest.

Mr. S. B. Williams, Upper Holloway, obtained a silver Banksian medal for a large and most interesting group of plants, comprising numerous excellent Orchids, Crotons, Nepenthes, &c., the front line being formed of the extremely attractive little Orchid Pleione lagenaria in 48-pots, each plant bearing about eight flowers. Some of the most noteworthy Orchids were the following:—Vanda cœrulea had two large spikes of pale bluish white flowers; Dendrobium superbiens was bearing a large spike of bright purple lake flowers with twisted sepals; the showy Odontoglossum grande, with six large flowers; Dendrobium bigibbum, a lovely Australian species with neat little bright purple flowers in long slender spikes; Maxillaria nigrescens, a species with peculiar brownish-coloured flowers, narrow acute sepals and petals; the attractive Oncidium tigrinum was bearing a long spike of flowers with large yellow labellums and narrow sepals and petals marked with chocolate bars and spots. Among other plants were the hybrid Nepenthes, N. Outramiana, obtained from a cross between N. Sedeni and N. Hookeri; the pitchers are freely produced, of medium size and thickly marked with red. A first-class certificate was awarded for it. A good specimen of the narrow-leaved Croton Rodeckiana, excellently coloured, was also exhibited. The group was backed up with Katakidozamia Hopei, Panax excelsa compacta, Hyphorbe excelsa, and the following, for each of which first-class certificates were awarded:—Cocos elegantissimus, a very graceful species with slender drooping bright green leaves, and Calamus densus, a distinct and handsome plant.

Mr. W. Bull, Chelsea, was accorded a vote of thanks for a number of new and rare plants, of which the most noticeable were the following:—Tillandsia Lindeni genuina, with fine purple flowers on a broad flattened spike; Masdevallia velifera, small flowers of a curious yellowish brown tinge; Cycnoches Warscewiczii, an extraordinary Orchid, one of Mr. Bull's recent introductions. The flowers have no beauty whatever in a horticultural point of view, as they are of a pale green colour, but they are interesting from being of two very different forms. One form (female) is 2 or 3 inches in diameter, with ovate sepals and petals and a heart-shaped labellum, and are borne on a short stiff spike. The other form (male) is small, with a peculiar stalked filamentous labellum, and the flowers are borne on a long pendulous spike. A botanical certificate was awarded for this peculiar plant. The very fine Oncidium varicosum with a dense panicle of bright yellow flowers, Bollea cœlestis, Oncidium ornithorhynchum, O. macranthum, and Pleione lagenaria were also in good condition. A first-class certificate was awarded for Adiantum mundulum, an elegant little compact Maidenhair Fern with bipinnate fronds; and similar awards were granted to Polystichum lentum, a pretty Fern with bright green pinnate fronds, the pinnæ being deeply serrate; and Adiantum cuneatum dissectum, a variety with deeply cut pinnules. Several early-flowering Chrysanthemums of considerable merit were also exhibited, notably the yellow Précocité.

Mr. John Wills exhibited the distinct new Fern Adiantum Bausei, which is supposed to be a hybrid between A. trapeziforme and A. decorum, and was raised by Mr. Bausé, the energetic manager of Mr. Wills' nursery at Anerley. The fronds have a most elegant drooping habit; the pinnules are large and bright green, and being also pendulous they cause the plant to appear almost as though it was flagging. Mr. G. King, gardener to G. Simpson, Esq., Wray Park, Reigate, sent a number of seedling Coleuses, one being especially bright—viz., majestica, with acute leaves, crimson in the centre and margined with yellow. For this a first-class certificate was awarded. Mr. Charles Noble, Bagshot, sent his dwarf Rose—Queen of the Bedders, with dark crimson flowers very freely produced. Mr. C. Green, gardener to Sir G. Macleay, Bletchingley, was accorded a vote of thanks for a specimen of Brunsvigia Josephineæ, with an enormous umbel of red flowers; and a first-class certificate for Passiflora Hahnii, a neat whitish flower with ovate leaves, velvety green above and purple underneath. Messrs. Rawlings Brothers of Romford contributed a collection of Dahlias, that was highly commended, including many seedlings of great merit. Mr. H. Cannell, Swanley, staged collections of Dahlias, Pelargoniums, and early-flowering Chrysanthemums, and deservedly obtained a bronze Banksian medal.

A cultural commendation was awarded to Mr. J. Walker, nurseryman, Thame, Oxon, for a quantity of cut flowers of the fine hardy climber Tropæolum tuberosum, which continues blooming for several months during summer and autumn. Mr. C. Turner, Slough, exhibited cut flowers of a fine yellow show Dahlia, Cyprus, and a fancy variety, Queen Mercedes, the florets white tinged with purple. A first-class certificate was obtained by Mr. Turner for an excellent bedding Dahlia named George Thomson, of dwarf habit, and producing large numbers of bright yellow well-formed flowers. He also exhibited flowers of a pretty bouquet Dahlia named Dora, the florets of which were white tinged inside with yellow. Messrs. Wm. Paul & Son, Waltham Cross, Herts, exhibited six boxes of cut Roses, a great many varieties being presented. The following were most noticeable for their freshness and substance;—Madame Victor Verdier, Pierre Notting, Madame Clemence Joigneaux, Beauty of Waltham, Dupuy Jamain, Alfred Colomb, Marie Baumann, Duchess of Bedford, and Baronne de Rothschild. A vote of thanks was accorded. Mr. Chambers, Westlake Nursery, Isleworth, sent specimens of a drooping variety of Pteris serrulata cristata, and a plant of Odontoglossum Alexandræ, bearing a long spike of about twenty flowers. For the latter a vote of thanks was accorded. Gentiana Andrewsii, exhibited by Mr. G. F. Wilson of Weybridge, received a similar recognition. Messrs. Haage & Schmidt, Erfurt, Prussia, were accorded a vote of thanks for cut flowers of Salvia farinacea.

FRUIT COMMITTEE.

H. Webb, Esq., in the Chair.

The collections of fruit were numerous and good, the large collections of Apples and Pears from Messrs. Veitch and Paul being especially remarkable. Grapes and Pines were also in fine condition. Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, exhibited five handsome well-ripened smooth Cayenne Pine Apples, weighing respectively 8 lbs. 14½ ozs., 6 lbs. 5 ozs., 5 lbs. 11½ ozs., 5 lbs. 10 ozs., and 5 lbs. 5 ozs. A cultural commendation and bronze medal were awarded. Mr. W. Allen, gardener to Lord Suffield, Gunton Park, Norwich, exhibited two fine bunches of Muscat of Alexandria Grape, weighing together 10 lbs., the berries large and well ripened. A bronze medal was awarded. He also sent a seedling, the result of a cross between Syrian and Alicante. Two bunches were shown, one the produce of a Vine inarched on Lady Downe's and the other from a Vine on its own roots; the bunch is long and the berry oval. The Committee considered it distinct, but desired to see it later in the year. Mr. Goodacre, Elvaston Castle, Derby, sent twenty-five bunches of Grapes in twelve varieties. The following were very good—Alicante, Barbarossa, Mrs. Pince, and Gros Colman. For this fine collection a silver Knightian medal was awarded.

Mr. Wildsmith, gardener to Viscount Eversley, Heckfield Place, Winchfield, sent twenty-two bunches of Grapes in ten varieties, including Lady Downe's, Trebbiano, Black Hamburgh, and Alicante well finished. This was also an excellent collection, and a similar award was granted. Messrs. Osborn and Sons, Fulham, exhibited a number of small plants of their new variety of Fig, Osborn's Prolific, which well deserves its name; but nothing was awarded, as the fruit was not ripe. Mr. J. Walker sent a fine dish of Pond's Seedling Plum well ripened, also a dish of Red Currants, for which a vote of thanks was accorded. Messrs. Veitch and Sons of Chelsea exhibited ninety-five dishes of Apples in good condition for the season. They had been borne by trees growing in the Southfield Nurseries, Fulham. The collection included all the best varieties, and a silver Knightian medal was awarded for them. Messrs. Wm. Paul and Sons, Waltham Cross, also staged a large collection of Apples and Pears, comprising a hundred dishes. The Pears were generally unripe. A bronze Knightian medal was awarded.

Messrs. H. Lane and Son, Great Berkhampstead, exhibited a large collection of Grapes, most of which were in fine condition, but their Vines in pots were most excellent. Six Vines were shown all bearing a large quantity of fruit, and generally well ripened and coloured. Foster's Seedling had twenty-eight, twenty-seven, and twenty-six bunches; Black Hamburgh fifteen and sixteen good bunches; and Alicante fourteen bunches. For this superb collection a gold medal was deservedly awarded. Mr. J. Perkins, gardener, Thornton Hall, Eye, Sussex, sent a seedling Melon named The Squire, fairly well netted. Mr. D. Beesley, gardener to R. P. Coleman, Esq., Spilsby, sent a brace of Cucumbers named the Improved Manchester Prize of good strain: this was commended. Mr. J. Pond of Jersey exhibited two seedling Shallots, one the Jersey Lily, and the other the Jersey Giant Red. They are to be tried at Chiswick. Herr Ernest Benary of Erfurt was awarded a first-class certificate for a purple-top

Turnip named Early Munich, which has been tried at Chiswick and found to be three weeks earlier than other varieties. A vote of thanks was accorded to Mr. Eads of The Cedars, Northampton, for a dish of Suttons' Giant White Runner Beans in good condition.

NOVEMBER 18, 1879.

ORDINARY GENERAL MEETING.

Major R. TREVOR CLARKE in the Chair.

Medals awarded.—Silver Banksian, P. M'Kinlay for a collection of Potatoes.

The meeting on this occasion was an extremely interesting one. The great features of the gathering were the Primulas from Mr. Gilbert of Burghley, the collections of plants from Messrs. Veitch and Bull, the Abutilons and Primulas from the Society's garden at Chiswick, and the numerous excellent collections of vegetables staged in competition for Messrs. Suttons' Prizes. Several fine collections of Grapes were also sent, especially those from Mr. Gilbert, Mr. Wood, and Mr. Bell, which are referred to below.

FLORAL COMMITTEE.

DR. DENNY in the Chair.

The chief collections arranged in the Committee room were the following, all of considerable merit—Messrs. James Veitch and Sons exhibited several new plants; a first-class certificate being awarded for Lælia Dayana superba, an extremely rich purple variety. Cattleya fausta superba and C. Mastersoniana, both beautiful hybrids, were passed. Stelia Bruckmulleri is a dwarf species with spikes of small brownish fringed flowers. Mr. W. Bull sent a large collection of rare plants, comprising many beautiful Orchids, Cycads, Palms, &c. The following were the most noticeable—Trichosma suavis, bearing spikes of small flowers with incurved white sepals and petals, and small labellums marked with yellow in the centre, and streaked with deep crimson; very neat and pretty. Odontoglossum Rossii majus, sepals thickly dotted with light chocolate, petals white with a few dots at the base, labellum white; a good variety. Sophronitis grandiflora had five good brilliant coloured flowers. Oncidium Rogersii had a spike of large flowers with their characteristic broad yellow labellums. Cymbidium giganteum was bearing a spike of five of its peculiar flowers. Many other plants, notably a specimen Davidsonia pruriens, were in good condition. A vote of thanks was accorded for the group.

A very large collection of double Primulas, raised by Mr. R. Gilbert of The Gardens, Burghley, was exhibited. Many of these varieties are particularly good, notably such as White Lady, Marchioness of Exeter, and A. F. Barron among the white and blush varieties, while among the pink forms the best is Lord Beaconsfield. About fifty plants were staged. Messrs. Osborn and Sons, Fulham, have acquired the stock, and will distribute these varieties in the spring of 1880. A vote of thanks was accorded to Mr. Gilbert. Messrs. T. Jackson and Son, Kingston, exhibited two stands of Japanese Chrysanthemums, new varieties. These flowers were in excellent condition, the following being the most noticeable for colour and form—La Nymphe, La Charmeuse, M. Crousse, Gloire de Toulouse, and Dr. Andiguier. A vote of thanks was accorded. A large and tasteful group of plants was sent from the Society's gardens at Chiswick, comprising a number of varieties of Abutilons, intermixed with Ferns and edged with Selaginellas. A collection of single Primulas was also contributed, comprising some striking varieties, especially among the crimsons. First-class certificates were awarded for P. sinensis Chiswick Red, flower neat and colour bright; and rubra violacea, a purplish crimson flower with a yellow eye. Messrs. Smith & Larke, florists, Kensington, exhibited several excellent bouquets and wreaths of Chrysanthemums, associated with Adiantums and Bouvardias. A vote of thanks was accorded. Mr. H. Bennett, Manor Farm Nursery, Staplefort, exhibited two Tea Rose plants in pots, Madame de St. Joseph and alba rosea, bearing a great number offru its produced by artificial fertilisation. A vote of thanks was accorded.

Mr. J. Roberts, The Gardens, Gunnersbury Park, Acton, was awarded a cultural commendation for a fine specimen of Odontoglossum Alexandræ bearing two spikes of ten and twelve flowers each. The flowers were large, with a few large chocolate spots on the sepals. Mr. H. Cannell, Swanley, received a vote of thanks for cut flowers of Salvia Bruantii splendens and S. Bethelli in fine condition, also the rich purple S. Hoveyi. Mr. R. Dean of Ealing sent plants of the neat bright Marigold Meteor, also a bright yellow hose-in-hose Primrose named Buttercup. A vote of thanks was accorded Messrs. Sutton and Sons for a collection of Cyclamens of their improved strain.

FRUIT COMMITTEE.

HENRY WEBB, ESQ., in the Chair.

Messrs. Wood and Ingram of Huntingdon sent a seedling kitchen Apple of a bright showy colour and brisk flavour. It did not possess any special merit over other varieties in cultivation. Mr. Chester, The Gardens, Connington Castle, sent a seedling Apple called Bellamy's Fillbasket, a medium-sized, round, ribbed, pale yellow Apple, with a soft flesh and mild subacid flavour. It was not considered equal to others already in cultivation. He also sent three varieties of seedling Pears, but as they were all mixed when they arrived the Committee could not distinguish the one from the other. Mr. P. Grieve, The Gardens, Culford Hall, sent fine specimens of Lucy Grieve Pear, but the flavour was not equal to those exhibited at former meetings in more favourable years. He also exhibited a seedling Apple which promises well, but the season is so unfavourable to the flavour of fruit that the Committee requested to see it another year. Mr. Wildsmith, gardener to Lord Eversley, Heckfield, exhibited a fine dish of Pitmaston Duchess, excellent in texture, but, like all Pears this season, rather deficient in flavour. The Committee gave a vote of thanks for the exhibition. Mr. George Sage, The Gardens, Ashridge Park, Herts, sent a dish of Vicomtesse Héricart de Thury Strawberry, to which a letter of thanks was awarded; Mr. Wood, The Gardens, Leybourne Grange, Kent, eight baskets of Gros Colman Grapes as they are packed for market, each basket containing about

9 or 10 lbs. weight; they were splendidly coloured, and the flavour was excellent. The Vines on which these were grown were grafted on Madresfield Court Vine, and it was interesting to observe the difference between the fruit thus produced and that which was grown on a Vine of the Gros Colman on its own roots. In the former the berries were quite black and the flesh firm and well flavoured; in the latter the berries were only partially coloured, and the texture of the flesh more loose and inferior in flavour. Mr. Wood exhibited the fruit as he packs it for market. It is put into ornamental baskets, and the bunches are secured round the sides by the base of the stalks so as to prevent them moving, and these ornamental baskets are again placed in hampers large enough to admit them easily. When they arrive at their destination the ornamental basket is merely lifted out and is ready for sale.

Mr. Bell of Alnwick exhibited six handsome bunches of the Alnwick Seedling Grape; they had been ripe for some time and had become shrivelled. The exhibit was commended with a letter of thanks to the exhibitor. Mr. R. Gilbert, The Gardens, Burghley, sent three handsome bunches of Gros Colman Grapes; the berries were large and well coloured; the flesh was very firm, and the flavour very fine. A cultural commendation was awarded. Mr. J. C. Mundell, The Gardens, Moor Park, Rickmansworth, sent two plants in fruit of the "Scotch Bonnet" Capsicum, which is the best of all the Capsicums. Mr. S. Ford, gardener to W. E. Hubbard, Esq., Leonardslee, Horsham, exhibited fifty dishes of Apples and Pears, which were rather small but otherwise good in quality.

Messrs. James Carter and Co. of Holborn sent a dish of Scotch Champion Potato which was cooked and proved excellent in flavour.

MESSRS. SUTTON AND SONS' PRIZES.

The special prizes offered by Messrs. Sutton and Sons brought together an excellent display of vegetables and extremely close competition. For a collection of twelve distinct kinds, to include Suttons' King of the Cauliflowers, Suttons' Improved Reading Onions, Suttons' Improved Dark Red Beet, and Suttons' Student

Parsnip, there were nine competitors, all staging excellent collections. The first prize was awarded to Mr. Neal, gardener to P. Southby, Esq., Bampton, Oxford, who in addition to the stipulated dishes staged good Excelsior Tomatoes, James' Intermediate Carrots, Snowball Turnips, Cardoons, Suttons' Matchless Sprouts, International Potatoes, and Ayton Castle Leeks. The second prize was awarded to Mr. J. Muir, gardener to R. M. Talbot, Esq., Margam Park, South Wales; and the third to Mr. W. Iggulden, Orsett Hall, Romford, both pressing closely for the first prize, each exhibitor being only one point ahead of the other. Mr. Muir's worst dish was the Celery; his Vick's Crimerion Tomatoes, Telegraph Cucumbers, Pomeranian Turnips, and Brussels Sprouts were very good. Mr. Iggulden showed good Tomatoes, Snowflake Potatoes, Celery, Onions, &c. Mr. Wildsmith's collection included remarkably fine Brussels Sprouts.

For twelve tubers of Suttons' Magnum Bonum there were sixteen entries, all staging good specimens of this popular variety. Mr. J. Fairweather, Halston, Oswestry, was awarded the first prize; and Mr. J. Richardson, Boston, the second. Five exhibitors competed in the class for Suttons' Woodstock Kidney Potato. Mr. Townsend, gardener to P. McKinlay, Esq., Croydon, obtained the premier award; and Mr. Harris, gardener to C. J. Eversfield, Esq., Denne Park, Horsham, the second, both staging excellent examples.

P. McKinlay, Esq., exhibited a collection of fifty-seven dishes of Potatoes in his well-known excellent style. Some of the best were Woodstock Kidney, Radstock Beauty, Manhattan, King of the Earlies, Shelbourne, International, Vicar of Laleham, Porter's Excelsior, Blanchard, Magnum Bonum, Trophy, Ashleaf, Snowflake, Lemon Kidney, and Beckenham Beauty. The latter is a seedling of Mr. McKinlay's, of which he thinks very highly as being in every respect excellent. Messrs. Sutton and Sons, Reading, staged a capital collection of Potatoes, fifty-four dishes in all; among them Suttons' King, Porter's Excelsior, Advancer, Fenn's Bountiful, Triumph, and Covent Garden Perfection were very noticeable. In addition to these they also staged good heaps of their Magnum Bonum, Woodstock Kidney, and Scotch Champion

Potatoes. Messrs. Carter and Co., High Holborn, staged about a hundred dishes of Potatoes, which included all the best varieties in commerce. Some of the best were the International, Trophy, Main Crop, Breadfruit, Manhattan. They also staged very fine heaps of Carter's Magnum Bonum Potatoes and Scotch Champion, both well-known disease-resisters, and a collection of Turnips and Swedes comprising about sixty-two varieties, many of them excellent examples.

SCIENTIFIC COMMITTEE.

SIR JOSEPH HOOKER, K.C.S.I., in the Chair.

Monstrous Flower of Horse Radish.—The Rev. G. Henslow reported on some flowers of a Horse Radish sent by Mr. Whitelegge, of Ashton-under-Lyne. The calyx, corolla, and six stamens were normal. The glands, however, were enlarged, so as to form a cushion-like disk, terminating above the base of the four taller stamens. Within these were four supernumerary stamens of the same height, being closely adpressed to the ovary. One or more were often adherent to the latter, which was then open, and so exposed the more or less rudimentary ovules. Hence the monstrosity was a true case of pleiotaxy.

The Stapleford Pedigree Roses.—Mr. Bennett attended the committee, and showed specimens of his hybridised Tea Roses covered with their fruits. Mr. Bennett explained his method of hybridisation by removing the stamens from the flowers of various Tea Roses grown under glass, and applying to the pistils the pollen of various hybrid Perpetuals. The results were not only interesting from a scientific point of view, but practically valuable in the production of what is virtually a new race of Roses of great beauty and vigorous habit. The seedlings come up earlier if taken from the fruits before the latter are quite ripe and sown immediately. Dr. Denny stated that he had observed the same thing in hybridising Pelargoniums, and Mr. Wilson also confirmed it in the case of Lilies, and called attention to the experiments of Mr. Ward of Ipswich, who hybridised hybrid perpetuals in a similar manner to that followed by Mr. Bennett in the case of Tea Roses.

Root Development.—The Rev. George Henslow showed a felted mass of fine root-fibrils and root-hairs, taken from a pot plant which had been laid aside and forgotten. Mr. Berkeley pointed out the resemblance to the fungus growth in Xylostroma.

Change of Sex in Begonias.—The Rev. George Henslow showed drawings of the male flowers of Begonias in which the connectives of the anthers had developed in the guise of stigmas.

Cross Fertilisation in Pelargoniums.—Dr. Denny described a singular bud variation that had occurred upon a white-flowered variety of Zonal Pelargonium of his own raising. Upon a good-sized propagated plant flowering in his house he observed a truss of flowers which differed very considerably from those ordinarily produced, its petals being much thicker and larger; its foot-stalk and the foliage of the twig were also of more robust growth. This small branch being propagated maintained its distinctive character, and has, in fact, upon further propagation, developed an increased amount of robustness of habit, resembling that of an old variety known as Beauté de Suresnes, the variety from which the first of the robust-growing doubles originated, in the form of a sport. The flower, too, has increased in size and quality, but the most singular characteristic property of this sport consists in its being infertile with any of the ordinary varieties of the Zonal Pelargonium—"even with the pollen of the flowers of the plant from which it was taken." It is not sterile, for it produces seed from its own pollen. In this respect it resembles (as well as in its habit of growth) Beauté de Suresnes, which would not fertilise, or be fertilised, save with two or three varieties. The Duke of Cornwall (an old variety) was one with which it was fertile, and it would be interesting to know if this sport would prove fertile with these varieties; but Dr. Denny stated that he had been unable to obtain them at any of the nurseries, and that he should be extremely obliged if any one who may possess either would forward him a cutting.

Diseased Yew and Cypress.—The Hon. and Rev. J. T. Boscawen sent specimens of diseased Yews and Cypresses for examination. The trees were gradually dying. The cause was not very obvious, but some aphides were observed on one of the specimens, which were ultimately referred to Mr. Berkeley and Mr. MacLachlan to report upon.

Solanum Dulcamara as a Decorative Plant.—Mr. MacLachlan referred to the use of this plant as a decorative plant in some parts of Switzerland, where it proved not only very ornamental, but no apprehension appeared to exist as to any danger arising from the berries. A conversation arose as to the causes of the wide distribution of the plant, for which no very obvious reason could be assigned beyond the lengthened period in which the seeds are known to retain their vitality.

Aphides and Wasps.—Mr. Jennings made some comments on some plants of Abies Nordmanniana infested with aphides (Lachnus sp.) which were greedily eaten by Wasps, which became stupified and died afterwards, but whether in consequence of their feast was not proven.

Hail and Leaves.—Mr. Jennings commented on the different manner in which hailstones affected the leaves of different varieties of Planes growing in the same nursery, the injury being much greater in some cases than in others.

Roman "Sleepers."—Mr. Noble sent for exhibition some logs of Oak with the bark still on them, and which had formed part of a Roman road at Bagshot, now 6 feet below the surface. The logs were used after the fashion followed of making corduroy roads. The wood and the bark were singularly well preserved. Mr. MacLachlan alluded to great quantities of partially blackened Oak, removed from the Lake of Neuchatel this summer, owing to the unusual lowering of the surface of the water.

Trichonema suavis.—Mr. Bull showed a plant of this pretty sweet-scented Orchid from Assam, to which, from its novelty and interest, was adjudged a Botanical Certificate.

Leaves of Spruces and of Silver Firs.—Dr. Masters commented on the comparisons to be made between the form, internal structure, and power of movement exhibited by the leaves of these plants. In the Spruces the leaves are cylindrical or angular, no one surface greatly exceeding another. Such leaves are so placed as not to interfere one with the other; they are about equal in size, and the degree of exposure to the light is about equal. Such leaves, though sometimes more or less twisted, seem to have little or no power of motion, and they are destitute of those regularly formed, closely packed cells called palisade cells. In the Silver Firs, on the other hand, the leaves are more or less flattened, so that they have a distinct upper and lower surface; those on the under surface of a shoot are twisted so as to bring them into the same horizontal plane as the upper ones. Moreover, they often overlap one another, and in this way would obstruct the passage of the light to the lower. This is obviated by the circumstance that the uppermost leaves are usually shorter than the subjacent ones, so that less of the surface of the latter is covered. In some cases, too, the upper leaves, instead of spreading horizontally, are so placed as to be parallel to the long axis of the shoot and at right angles to the lateral leaves. A still more effective means of securing access of light to the lower leaves, and at the same time of exposing the lower surfaces, on which the majority of the stomates are placed, to the influence of light and heat, is secured by the power of elevation and depression which the leaves of the silvers have. This is so marked in some cases, as in A. Nordmanniana, that when the leaves are thus uplifted so as to show their glaucous under-surface, the whole of the tree is milky-white in appearance. In these flat-leaved silvers the palisade cells are usually found forming a distinct layer beneath the upper surface.

The late Mr. Wilson Saunders.—It was unanimously agreed that the President be requested to address a letter of condolence to the family of the late Mr. W. Saunders. Mr. Saunders was one of the original members of the committee, took great interest in its proceedings, and to the last contributed notes of observation and specimens. The committee has to regret the loss of one of its staunchest and most useful members.

DECEMBER 16, 1879.

ORDINARY GENERAL MEETING.

Colonel R. TREVOR CLARKE in the Chair.

Elections.—J. Hume Burnley, Edward Jenner Jerram, Vernon Lushington, Charles Wm. Morriss, Mrs. Grigg, Mrs. Linklater, Major J. Mackenzie (of Findon), Henry Oliver Smith.

Medals awarded.—Silver Medal, J. Atkins (gardener to Col. Loyd Lindsay) for Grapes Muscat of Alexandria; Silver Medal, J. Wallis (gardener to Rev. W. Sneyd) for a collection of Grapes; Bronze Medal, J. Roberts (gardener to the Countess of Charleville) for two bunches of Grapes Gros Guillaume; Silver Medal, H. B. Smith (Ealing) for a collection of Cyclamens; Bronze Flora, J. Ollerhead for a group of Ponisettias.

The last meeting of the Society in the year 1879 was uncommonly bright and interesting for such an unfavourable season. Although the exhibits were not very numerous, they compensated for that defect in their general excellence. Messrs. Cannell, Miles, Dean, and Ollerhead's contributions formed the bulk of the floral display, Grapes being extremely well represented by collections from Messrs. Atkins, Wallis, and Roberts.

FLORAL COMMITTEE.

Dr. DENNY in the Chair.

Few plants were exhibited for certificates, the collections principally being composed of Pelargoniums, Poinsettias, Cyclamens, and cut blooms of Chrysanthemums. Mr. H. Cannell, Swanley, Kent, was accorded a vote of thanks for a large collection of Zonal Pelargonium blooms in excellent condition and extremely bright and well formed. He also sent six well-flowered plants of White Vesuvius and cut flowers of Dahlia imperialis. Mr. C. Green, gardener to Sir G. Macleay, Pendell Court, Bletchingley, exhibited a plant of the distinct and pretty tufted Saxifraga valdensis, and cut flowers of Dahlia Maximiliana, a species similar in habit to D. imperialis, with pale purple florets. A vote of thanks was accorded. Mr. G. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, received a similar recognition for a collection of incurved, reflexed, and Pompone Chrysanthemum flowers, which were distinguished by their neat forms and good colours for such a late period. Mr. J. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston, was also accorded a vote of thanks for a collection of twenty-four cut blooms of Chrysanthemums, several of which were in good form. The best were Fulton, Madame Godilot, The Mikado, Princess Teck, and Hero of Stoke Newington. Mr. J. Osborn, gardener to H. J. Buchan, Esq., Southampton, was awarded a first-class certificate for a pretty Orchid, Oncidium Edwardi, which was bearing a panicle of small flowers with recurved sepals and petals of a purple tinge. Mr. W. Miles, West Brighton Nursery, Cliftonville, very worthily obtained a cultural commendation for a collection of plants of the Zonal Pelargonium West Brighton Gem, very dwarf, compact, and profusely flowered. Mr. H. B. Smith, Ealing Dean Nursery, Ealing, staged a very large collection of Cyclamens comprising about 170 plants, all in 48-size pots, vigorous, dwarf, even, and remarkably well flowered. The collection included many good varieties, and a first-class certificate was awarded for Baroness Burdett Coutts, of which the flowers were pure white, large, of great substance; the peduncles stout, and foliage prettily marbled. Mr. Ollerhead, gardener to Sir H. Peek, Bart., M.P., Wimbledon House, was accorded a vote of thanks for a large group of Poinsettias, including a variety named rosea that was exhibited with plants of P. pulcherrima to show its distinct character. The bracts appear smoother in outline and of a rosy scarlet tinge, which at a distance has, however, a somewhat dull appearance. Messrs. T. Jackson and Son, Kingston-on-Thames, sent a collection of new Japanese Chrysanthemum flowers not in first-rate condition generally. A first-class certificate was awarded for M. Lemoine, a flower of somewhat reflexed character, the outer florets yellow and the inner orange red. Mr. C. Noble, Bagshot, sent a flower spike of Lilium giganteum of extraordinary dimensions; it measured 13 feet in height and 11 inches in circumference at the lower portion, and had borne twenty-two flowers.

FRUIT COMMITTEE.

HENRY WEBB, Esq., in the Chair.

On this occasion some excellent Grapes were exhibited; the immense bunches of Gros Guillaume from Mr. J. Roberts attracted especial attention. The Muscats from Mr. Goodacre were noticeable for their good form and high finish. Mr. J. Wallis, gardener to the Rev. W. Sneyd, Keele Hall, Stafford, sent a fine collection of Grapes, comprising eighteen bunches of six varieties. Lady Downe's were well ripened; Black Alicante, very good; Golden Queen, of medium quality; Gros Guillaume, handsome bunches, good colour and bloom; Gros Colman and Black Morocco were also well represented. A cultural commendation was awarded, and the Committee recommended the award of a silver medal. Mr. J. Roberts, gardener to the Countess of Charleville, Charleville Forest, Tullamore, exhibited two enormous bunches of Gros Guillaume Grape, which had been borne on one rod, and weighed collectively 42 lbs. A card affixed to the stand stated the same variety had in four years produced seven bunches, which in the aggregate weighed over 126 lbs. The Committee awarded a cultural commendation, and recommended a bronze medal. Mr. J. H. Goodacre, The Gardens, Elvaston Castle, Derby, sent two well-grown Smooth Cayenne Pine Apples; Mr. Coombes, gardener to J. Rolls, Esq., The Hendre, Monmouth, also sent two similar Pine Apples, and each exhibitor was awarded a cultural commendation. Mr. J. Atkins, gardener to Col. Lloyd Lindsay, Lockinge Park, Wantage, sent twelve remarkably handsome bunches of Muscat of Alexandria, excellently finished, and fine in berry. The same exhibitor also staged nine dishes of Apples and two of Pears in good condition. For the Grapes a cultural commendation was accorded, and a silver medal recommended; and for the Apples a letter of thanks was sent. Messrs. Carter and Co. of High Holborn staged two large heaps of Potatoes, Magnum Bonum and Scotch Champion; the latter variety was cooked, and the Committee expressed their opinion that it is remarkable for resisting disease, and that it is a Potato of good quality. Mr. W. Hinds, The Gardens, Canford Manor, Wimborne, obtained a cultural commendation for a dish of excellent Tomatoes. On the conclusion of their duties Mr. John Lee proposed a vote of thanks to the Chairman, which was carried by acclamation.

SCIENTIFIC COMMITTEE.

Sir J. D. HOOKER, K.C.S.I., in the Chair.

This, the last meeting of the year, was fairly well attended, but the subjects brought under the notice of the Committee were not so numerous as usual.

Yew Disease.—Dr. M. C. Cooke, alluding to the Sphærella Taxi, a fungus found on Yew leaves, now modified a former statement by stating that he considered the fungus to be the cause of the diseased condition, and not merely a consequence.

The late Mr. Wilson Saunders.—The Chairman reported that in compliance with the wishes of the Committee he had addressed a letter of condolence to the widow and family of the deceased gentleman—one of the earliest members of the committee, and to the last a constant contributor to its proceedings.

Planes.—Mr. Jennings showed leaves of various forms of Platanus acerifolia to show the very different effects of hail upon them.

Diseased Ivy. — Mr. Scofield showed roots of Ivy completely killed perhaps by the spawn of a fungus, but there was no good evidence to show what was the cause of the death of the plants.

Diospyros Kaki.—Mr. G. F. Wilson showed a fruit of the Japanese Persimmon, grown in his orchard-house.

The Apple Crop in Melbourne.—A letter was read requesting advice as to the failure of Apples and Peaches in various parts of Australia, but as the information given was of the vaguest and most general character, and unaccompanied by specimens, no opinion could be given.

Some discussion then took place as to the day of meeting, the election of new and the removal of old members.

JANUARY 13, 1880.

ORDINARY GENERAL MEETING.

DR. DENNY in the Chair.

Elections.—Mrs. Barrand, A. Clapham, Francis A. M. Eland, Mrs. Catherine Greaves, Stephen Kennard, William Henry Belfield, Mrs. Chermside, Sydney Ebbs, Rev. H. Harpur Crewe, Mrs. K. J. Houldsworth, Mrs. Martha Ellen Radley, Sir Henry Scudamore Stanhope, Bart., Frank Tayler, Preston J. Wallis.

Medals awarded.—Silver Banksian, J. Veitch and Son for groups of Orchids, Cyclamens, and Primulas; Silver Banksian, H. Cannell for cut blooms of Pelargoniums.

The first meeting of the year would have been an unusually quiet one had not Messrs. Veitch contributed three large and handsome collections of Cyclamens, Primulas, and Orchids, besides groups of Roman Hyacinths and Lilies of the Valley. Mr. Cannell's Pelargoniums were also very bright, and imparted a very agreeable liveliness to the otherwise rather dull appearance of the tables.

FLORAL COMMITTEE.

W. B. KELLOCK, Esq., in the Chair.

Messrs. James Veitch and Sons, Chelsea, were accorded a vote of thanks, and the award of a silver medal recommended for their large collections of plants. These comprised about forty Cyclamens in very vigorous health, both the foliage, flower, and colours being excellent; twenty plants of Primula sinensis fimbriata alba with very large flowers, and about the same number of P. fimbriata rubra, trusses large and colours rich. A collection of Lilies of the Valley was unusually fine, the scapes and bells large and accompanied by good foliage, which greatly improves the appearance of the flowers. An excellent collection of Orchids was also staged, including Masdevallia Tovarensis, a well-known pretty white-flowered species from Colombia, with over sixty flowers (first-class certificate); Saccolabium giganteum, a good specimen, which was bearing eight large spikes; Masdevallia polysticta, flowers with small purple-spotted attenuated sepals; Chysis Chelsoni, a hybrid between C. bractescens and C. aurea, with pale orange-coloured sepals and petals; Dendrobium endocharis, a hybrid between D. japonicum and D. heterocarpum, with small whitish flowers, sweetly scented; Oncidium cheirophorum, bearing over a dozen racemes of small yellow flowers. A flowering plant of Staphylea colchica was also shown bearing numerous trusses of white flowers. This plant is well adapted for forcing, and yields a profusion of useful flowers. It was first exhibited and certificated in January last year. (It is figured in the Journal of Horticulture, vol. xxxvi., page 66.) Mr. W. Bull obtained a first-class certificate for Barkeria cyclotilla, an Orchid from Mexico; the flowers are small, sepals and petals pale pink, labellum tipped with bright lake. Very pretty and distinct.

Messrs. Osborn and Sons, Fulham, exhibited a handsome specimen of Helleborus niger majus. The plant was in a tub, and measured about a yard across, and was bearing over three dozen flowers, some of which were nearly four inches in diameter; foliage very dark green and vigorous. Cut flowers of Gilbert's double Primulas were also shown extremely good in colour and form. A vote of thanks was accorded. Messrs. Sutton and Sons, Reading, sent a collection of new Primulas and Cyclamens, several of which were neat in habit, but were not considered sufficiently distinct to merit special award. Mr. Cannell, Swanley, Kent, exhibited a large number of Pelargonium blooms in excellent condition as regards colour and form. The most distinct were Mrs. Moore (white with a salmon centre), Louis, Zuleika, Polyphemus, H. Jacoby (very rich dark crimson), Jean d'Arc (good white), Rienzi (fine scarlet); also three sports of Vesuvius (white, salmon, and striped), flowers neat and of good substance. Several pretty species of Fuchsias (F. splendens, F. serratifolia, F. microphylla, and F. thymifolia), and two varieties of Primula—Swanley Red and Swanley Purple, the latter being of an extremely rich crimson tint. For the Pelargoniums a vote of thanks was accorded, and a silver medal recommended. Mr. McGrigor, gardener to C. Walker, Esq., Lanark, was accorded a vote of thanks for a fine flower of Lycaste Skinneri alba.

Mr. Maries—who has recently returned from Japan, where he was engaged in collecting plants for Messrs. Veitch and Sons—exhibited in the Society's library a large number of curiosities which he had acquired in his travels. These comprised various articles of native manufacture, such as fans, screens, &c., collections of insects, snakes, birds, shells, and geological specimens. In addition, a large number of excellent photographs were shown, illustrative of the most picturesque scenery and vegetation.

FRUIT COMMITTEE.

HENRY WEBB, Esq., in the Chair.

Mr. Goldsmith, gardener to P. C. Hardwicke, Esq., Hollenden, Tonbridge, sent a collection of twelve varieties of Pears to show how they had kept this year. Many of them were quite out of season, Beurré d'Amanlis being now only just ripe, and Beurré Superfin was in its best condition, while several of those which are usually autumn Pears were not yet ripe. Mr. Shirley Hibberd of Stoke Newington sent twelve pans of Watercress remarkably well cultivated. They were of two kinds—the Erfurt Sweet Cress and the ordinary Watercress, of the latter of which there appeared to be two varieties, one of a dwarfer habit than the other. A cultural commendation was awarded. Messrs. Barr and Sugden, King Street, Covent Garden, sent a collection of sprouts of Variegated Kale, to which a letter of thanks was accorded.

SCIENTIFIC COMMITTEE.

Sir JOSEPH HOOKER, K.C.S.I., in the Chair.

Vine Disease.—Dr. M. Cooke alluded to the new disease in the Vine caused by a fungus like that producing the Potato disease, and belonging to the same genus, viz., Peronospora viticola. This disease it appears is spreading extensively on the Continent, and has lately been recorded from Italy.

New Zealand Plants.—Mr. G. F. Wilson showed a series of beautifully executed coloured drawings by Mr. Nolan, of New Zealand and Australian plants. The fidelity of the representations and the tasteful grouping were much admired.

Bud Variation in Spruce Fir.—Dr. Masters showed a fine specimen from Hampshire of a mass of densely crowded, contracted branches on the bough of a Spruce Fir—a formation analogous to the Clanbrassil Fir. It is interesting to see that this singular variety produced by bud-variation, as also from seed.

Solanum Dulcamara.—The Rev. George Henslow showed a specimen of the maritime form of this species from Walmer beach, some of the leaves of which were densely clothed with hair, perhaps in consequence of the puncture of a mite (Phytoptus).

Insects in Pitchers of Sarracenia.—Mr. Henslow mentioned the fact that many of the pitchers of these plants in the collection of Mr. Bull became choked with insects, which in their decay brought about the rotting of the pitcher. The fact of the larva of a dipterous insect (Sarcophaga sarraceniæ) making its home in these pitchers, and feeding on the insects therein entrapped, was also commented on.

Destruction of Insects by Yeast.—Mr. MacLachlan called attention to a pamphlet of Dr. Hagan's, in which he advocates the use of yeast as an insecticide. The idea was suggested by the fungus which is so fatal to flies in autumn.

Malformed Root of Ash.—Mr. Jennings showed some curious outgrowths from the roots of the Ash, which were referred to Dr. Masters to be examined and reported on.

Cocoons from West Africa.—Mr. Jennings showed a curious pear-shaped felted case, which, when slit open, was found to contain a colony of hundreds of cocoons of a lepidopterous insect (Anaphe).

Japanese Objects.—A special vote of thanks was unanimously awarded to Mr. Maries for the collection of miscellaneous objects mentioned above.

FEBRUARY 10, 1880.

ORDINARY GENERAL MEETING,

The Right Hon. LORD ABERDARE in the Chair.

Elections. Mrs. Crewse, E. S. Dodwell, Capt. G. T. Heyworth, Frederic Josselyn, Mrs. Montagu, Mrs. Otter-Barry, Peregrine Purvis, Rochford A. Sperling, Mrs. Frances Trower, H. C. Webber and T. F. M. Williams.

Medals awarded. Silver Knightian, L. A. Killick, for a collection of Apples; Bronze Medal, W. Bull, for a group of Plants.

The Council Room on the occasion of this meeting was rendered bright and attractive by several groups of plants, those from Messrs. Veitch, Bull, Osborn, and Cannell, being the most noticeable. Many other plants of considerable interest individually were also exhibited. The fruit also, notably Mr. Killick's collection of Apples and old and new Grapes from Trentham, attracted considerable attention.

FLORAL COMMITTEE.

Mr. CHARLES NOBLE in the Chair.

Messrs Veitch and Sons exhibited a group of dwarf, vigorous, and well-flowered Cyclamens, and several choice Orchids and other plants. Dendrobium splendidissimum, the result of a cross between D. heterocarpum and D. macrophyllum, was awarded a first-class certificate. The flowers are of medium size, with white sepals and petals and small labellums of an extremely rich purple tinge in the centre. D. Dominii, the result of a cross between D. nobile and D. heterocarpum, was also pretty. A first-class certificate was granted to the pretty and fragrant Daphne Blagayana; the flowers are borne in close heads, and the only disadvantage is the somewhat loose habit of the plant. A vote of thanks was awarded for the group. A first-class certificate was also awarded for Nepenthes bicalcarata, a species from Borneo with large dark red pitchers.

Mr. W. Bull staged a group of Orchids and Palms, including the extremely delicately tinted Cattleya Trianæ Vesta, the bright little

Sophronites grandiflora, Cymbidium Lowianum, Odontoglossum Rossi majus, Ada aurantiaca, and Odontoglossum cirrhosum. Dendrobium luteolum was also included, a pretty species with small pale yellow flowers. The award of a bronze medal was recommended by the Committee for these plants.

Mr. H. Cannell, Swanley, Kent, exhibited a group of white Primulas in 5-inch pots. Some of the plants were more than 18 inches in diameter. All were extremely luxuriant, each plant bearing a number of umbels. He also exhibited cut flowers of twenty distinct varieties of Primula, some of which were very rich and clear in colour. They were stated to have been grown with Cannell's Invigorator or food for plants. A vote of thanks was awarded. A peculiar little Primula was also shown, stated to be a hybrid between the English and the Chinese Primroses; the flowers were small, and chiefly resembled the Chinese form. Mr. Chambers, Westlake Nursery, Spring Grove, Isleworth, was awarded a vote of thanks for a good specimen of Cœlogyne cristata bearing about fifteen spikes, each with four or five flowers.

Messrs. Osborn and Son, Fulham, staged a group of plants, comprising Lillies of the Valley, Azalea amœna, Lilacs, Polygonatums, and various Palms, chiefly Cocos Weddelliana. A vote of thanks was awarded. Mr. C. Green, gardener to Sir G. Macleay, Pendell Court, Bletchingley, received a vote of thanks for Salvia albocœrulea, the upper lip of the flower being yellowish white and the lower deep blue, and for Cineraria Webbiana, a species from the Canary Islands. The outer florets of the heads were narrow, spreading, and bright purple. A similar award was accorded to Mr. Hudson, gardener to H. G. Atkinson, Esq., Gunnersbury House, Acton, for cut blooms of Maranta Warscewiczii. Mr. E. Wilson, gardener to T. Farmer Hall, Esq., Effingham House, New Leatherhead, also received a vote of thanks for a fine specimen of Dendrobium chrysotoxum bearing five racemes of its beautiful yellow flowers. Mr. Rann, gardener, Handcross Park, Crawley, sent a large male cone of Encephalartos villosus about 2½ feet long, also a flower spike of Dasylirion glaucum. Mr. J. Stevens, The Gardens, Trentham, exhibited a remarkably handsome specimen of Lælia anceps bearing ten long racemes, each having four or five large and richly coloured flowers near the apex of the peduncle. A cultural commendation was most deservedly awarded for the plant. The variety of Cyclamen Rosy Morn, for which a certificate was awarded to Mr. H. B. Smith, Ealing, Dean Nursery, last year, was again exhibited in good condition, and the certificate was confirmed.

FRUIT COMMITTEE.

HENRY WEBB, Esq., in the Chair.

Mr. Stevens of Trentham exhibited two dishes of Black Hamburgh Grapes, one old and the other new, and also a bunch of Madresfield Court. To preserve old Black Hamburghs till this season is a very unusual occurrence, and the Committee expressed a high opinion of Mr. Stevens's skill. The new were of excellent flavour, good colour and remarkably well grown. The old were quite plump and richly flavoured. A cultural commendation was awarded. Messrs. Brown of Stamford sent a dish of Apples called Beauty of Barnoak, a conical striped Apple of ordinary quality. Another from the same source was Wharfland Beauty, somewhat in the style of Golden Reinette. It came up as a chance seedling in a nursery at Oakham, and though superior to the other was not in such condition as to enable the Committee to give a high character to it, and a wish was expressed to see it again next year, when the season may be more favourable for the development of its merits. Mr. John Lane, The Gardens, Oakley Park, Scole, sent a dish of Vick's Criterion Tomato, but the fruit had been kept too long. Mr. H. A. Mann, The Gardens, St. Vincent's, Grantham, sent a box of fifteen fine large Mushrooms of very fine quality, to which a cultural commendation was awarded. Mr. Lewis Killick of Langley, near Maidstone, sent a fine collection of sixty varieties of Apples in very excellent condition, and a silver Knightian medal was awarded.

SCIENTIFIC COMMITTEE.

Dr. MAXWELL MASTERS, F.R.S., in the Chair.

Ash Root.—The Chairman reported that he had examined the Ash root submitted to him at a former meeting, and had found that the main cause of the deformity was attributable to the great increase in thickness of the corky layers of the rind. No trace of fungus had been seen.

Phylloxera at the Cape.—Mr. MacLachlan stated that he had examined specimens sent from the Cape of diseased Vines, but without finding any trace of the insect. He adverted to the folly of indulging in panic, particularly where, as in this case, there was no basis for it. The Chairman remarked that it had been reported that the Cape Government had actually enacted or were about to enact a law absolutely prohibiting the importation of any living plants whatever beyond their frontier; and he suggested that the Council of the Society might be appropriately requested to take steps to urge on the Colonial Government the useless folly of such an enactment. Considerable discussion ensued, the Chairman and others giving their experience of the working of similar laws in Italy and Spain. Opinion was unanimous as to the futile character of such enactments, and as to their absurdity when applied to plants other than Vines, but as to official remonstrance on the part of the Society it was considered better to await full official information.

Peach Twigs and Galvanised Wire.—Mr. Hudson, gr., Gunnersbury House, Acton, sent some shoots of Peach trees, which had apparently been injured by being tied to galvanised wire. This is a subject upon which there has been much discussion. The specimens sent were referred to Dr. Hogg and the Rev. George Henslow for examination and report.

Specimens Shown.—By Mr. Rann: Flower-spike of Dasylirion glaucophyllum, and male spike of Encephalartos villosus. By Messrs. Veitch: specimens of Nepenthes bicalcarata. By Mr. Cannell: a Primrose, supposed to have originated in a cross between the English magenta-coloured hybrid Primrose and the Chinese form. The plant exhibited was of a peculiar aspect, dwarf habit, and with small flowers. Some of the petals were lilac, others deep magenta, others variously blotched and spotted. The foliage and the stems were of the character of the Chinese form.

New Species of Crocus.—Mr. Maw then read his paper on this subject, and illustrated it with numerous exquisite coloured drawings. The paper will appear *in extenso* in the *Journal* of the

Society, and is specially interesting, not only for the large number of new species described, but also for the valuable notes on structure and geographical distribution by which they were accompanied, and the discrimination shown in the unravelling of the synonomy of the older and less known species.

ANNUAL GENERAL MEETING.

The Annual General Meeting of the Society was held on February 10th, the President, Lord Aberdare, in the chair. The following members of the Council were present—Sir T. Lawrence, Bart., Col. R. Trevor Clarke, Dr. Denny, Sir Charles W. Strickland, Bart., Major F. Mason, Dr. Hogg (Secretary), and Henry Webb, Esq. Treasurer).

Mr. S. JENNINGS, the Assistant-Secretary, read a list of names of ladies and gentlemen who were desirous of becoming Fellows of the Society, and the Chairman moved that they be elected. The minutes of the last General Meeting were then read and formally confirmed. The election of Scrutineers having been proposed, Mr. John Lee and Mr. West were duly appointed.

The PRESIDENT next proposed that the Report of the Council be taken as read, which was unanimously agreed to. He then proceeded to make a few remarks upon the position of the Society. He regretted that it was not in his power to lay before the Fellows more definite information, but as litigation had been commenced, the results of which were at present very uncertain, he did not feel justified in saying much concerning the matter. He reminded the meeting, however, that it was the duty of the Society in the interest of the debenture holders to retain possession of the Garden as long as they could do so legally. Although it was difficult to state anything with certainty in reference to a Chancery suit, he believed it probable that a decision would be obtained during the month, after which the future course of the Society could be discussed to much better advantage. The past year had been a most disastrous one for horticulturalists, and although the Council had made unusual efforts to render the shows and meetings as attractive and complete as possible, thus increasing the expenditure, yet the receipts were lower than the previous year. Thus, while the Society started in the year without any serious additional incumbrances it became necessary to be as economical as possible. Notwithstanding the unfavourable weather on each occasion the conversazione and fêtes proved successful, for a balance of £60 remained after paying all expenses. The receipts for the garden produce reached a very high figure during the past year—viz. £634 18*s.* 11*d.*, a sum greatly in advance of that received in the previous year. As a set-off against this he referred to losses occasioned by the hailstorm, which necessitated the outlay of £140 to repair the damage; while the failing of a boiler at Kensington also increased the expenses by £120. He then briefly remarked, that even though the decision in the Chancery suit should be against the Society they might still retain a portion of the Kensington Gardens, for he believed the Commissioners were disposed to be friendly. He concluded, hoping that at the next General Meeting the affairs of the Society will be in a more settled and satisfactory state.

Mr. GUEDELLA thought the Fellows were indebted to the Council for so courageously "sticking to a sinking ship," and strongly condemned the course taken by the Commissioners.

The result of the ballot was then declared, the following gentlemen being elected to the Council—W. Haughton, Esq.; Sir Henry Scudamore Stanhope, Bart.; and the Rev. H. Harpur-Crewe, in place of the three retiring members,

Mr. KELLOCK enquired whether the Editor of the Society's Journal really received a separate salary of £100, or whether that formed part of his salary as Assistant Secretary.

LORD ABERDARE replied that it formed part of Mr. Jennings' regular salary.

Mr. LIGGINS moved a vote of thanks to the Council for undertaking to protect the interests of the Society by defending a suit in Chancery, which was seconded and carried unanimously.

A unanimous vote of thanks to Lord Aberdare brought the proceedings to a close.

REPORT OF THE COUNCIL TO THE ANNUAL GENERAL MEETING OF 10TH FEBRUARY, 1880.

The Council have to report to the Fellows a continuance of interest in the operations of the Society during the past year.

Notwithstanding the unfavourable weather which prevailed throughout the whole of last year, and which marred the success of the exhibitions and meetings generally, the receipts on account of these have not fallen greatly short of those of the previous year.

The fortnightly meetings have been liberally supported—groups of an interesting nature, and valuable collections of fruit, vegetables, and plants have contributed to sustain their high character; and the Council take this opportunity of acknowledging the valuable services rendered by the Scientific, Fruit, and Floral Committees, whose proceedings have been fully recorded in the Journal of the Society.

The Great Show of 27th May was equal to any former Exhibition as regards merit and extent, and was honoured by the presence of H.R.H. the Princess of Wales, and T.R.H. the Duke and Duchess of Edinburgh, the Crown Princes of Denmark and Sweden, the Count and Countess of Flanders, and the Duke of Teck.

The Popular Show upon Whit-Monday was an improvement upon that of the previous year, the Covent Garden growers filling the grand marquée with a brilliant display of the flowering plants which are specially grown for the supply of the London markets, and in spite of the heavy rain, the number of visitors on this occasion was 8071.

The Council are desirous of fostering a love of horticulture amongst the humbler classes; and deeming this one of the objects to be kept in view by the Society, they resolved to hold a show upon Whit-Monday, the 17th May next, and to postpone the competition for the cottagers' and artisans' prizes to the Bank Holiday, 2nd August.

In compliance with a desire expressed by the Fellows, the Council held a conversazione on the evening of Wednesday, 28th

May, which, in spite of the weather, was numerously attended. The tents of the Great Show and the conservatory were illuminated by different systems of electrical lighting, and the members of the Quekett Microscopical Club were present with their microscopes. The success of this conversazione encouraged the Council to hold an evening fête on the 9th July, the principal features of which were the exhibition of recent scientific inventions, including Edison's loud-speaking telephone, the phonograph, microscopes, with various other attractions. The gardens were brilliantly illuminated by electricity, and the attendance was very large.

Her Majesty's Commissioners for the Exhibition of 1851 having commenced legal proceedings in order to obtain immediate possession of the Gardens, the Council were advised that they were bound to use every legal means of defending the interests of the debenture holders, whose sole security for the payment of the interest on their bonds, as well as for the portion of the capital for which the property of the Commissioners was conditionally liable, would have disappeared with the termination of the lease to the Society. These proceedings are still pending. The Council cannot refrain from expressing their deep regret that the terms offered by the Commissioners some three years ago were declined by the debenture holders, a refusal which not only involved the loss of an opportunity of obtaining repayment of a portion of their capital which might not easily recur, but has compelled the Society to embark in a litigation which they would gladly have avoided could they have done so with justice to the debenture holders and with security to themselves. The Council have reason to believe that juster views of their position now prevail among the debenture holders, and that if a similar offer were repeated it would be accepted by them. Such a course would be hailed by the Council with the greatest satisfaction. They cannot but think that, whatever may be the legal rights of the debenture holders, strictly construed, their moral claim for consideration and even generous treatment by the Commissioners, on whose property their money was expended for objects warmly fostered by them and their late illustrious President, is very strong; while the amicable settlement of the question would greatly promote favourable arrangements by the Society with the Commissioners for the use of the Gardens, or such portion of them, and of the adjoining premises, as would not be required for public purposes.

The fifth volume of the Journal has been completed during the past year. Amongst the papers may be mentioned Notes by Dr. Masters, F.R.S., on "Root Hairs and Root Growth," and a treatise "On the Genus Tulipa," by H. J. Elwes, Esq. The reports of Chiswick trials have included Endives, Cabbages, double-flowered Ivy-leaved Pelargoniums, Abutilons, and Gloxinias.

The desire expressed by the Council in their last annual report, that correspondence should be opened with foreign and colonial horticulturists, has been gratified by the receipt of bulbs from Dr. Regel of St. Petersburg, of many interesting Caucasian and Central Asian Plants, and seeds from various contributors at the Cape, in America, Australia, and Van Dieman's Land, seedlings from many of which will shortly be available for distribution amongst the Fellows.

The trials by the Floral and Fruit Committees at Chiswick have been continued as usual, but owing to the unfavourable season the results have not been so satisfactory as might have been desired, especially of those carried on in the open air. A complete trial of all the varieties of summer Radishes has been made, numbering 130 samples.

The Society now possesses a fine collection of Tuberous Begonias, many of which are hybrids raised in the Gardens by Mr. Barron, who has also been most successful in raising several new and handsome varieties of the Chinese Primrose.

The violent hailstorm of August last broke upwards of one thousand panes of glass, while other necessary repairs at Chiswick have occasioned extra expenditure. The land on the west of the Gardens having been sold and a new road made it was found necessay to erect a new boundary wall. The cost has been defrayed by His Grace the Duke of Devonshire, on the understanding that one moiety shall remain as a loan to the Society at 5 per cent. interest. The expenses of the Gardens have been reduced to a minimum, while their efficiency has been maintained under the superintendence of Mr. Barron.

One of the large boilers which heats the conservatory at South Kensington, and had been worked for many years, failed during the last winter; this caused with fixing an outlay of about £120.

Owing to the excessive and continuous rainfall during the past season, and the unusually low temperature which prevailed, the out-of-doors fruit crop has been very poor. Strawberries were most abundant, but litterally rotted on the ground.

The crop of Grapes in the large conservatory was exceptionally good, realising about £400.

The young Vines planted on the long glazed wall have grown very strong and promise well.

A large number of plants growing in the rockery were killed by the severe frost of last winter, but most of them have been liberally replaced by Mr. Ware of Tottenham, and others; but the damage done by the frost of the present winter may prove far more serious.

A list of the donors of plants, &c., is annexed to this report. The cordial thanks of the Council are tendered to them for their much-appreciated contributions.

Great attention has been paid during the past year to the distribution of plants and seeds amongst the Fellows of the Society. The number of plants distributed has amounted to 10,250; cuttings of plants, fruit trees, and Strawberry runners, 2300 bundles; packets of seeds 44,730, being double the amount of the previous year.

The Council regret that owing to the great scarcity of all kinds of seeds, caused by the wet and cold of the past autumn, the distribution during the coming season must necessarily be limited; but a very large stock of plants is being prepared, particulars of which, with form of application, will be furnished in the next number of the Society's Journal.

A new railway station on the Metropolitan and District Railway has recently been opened at Acton Green, within four minutes' walk of the Gardens. Trains run every half-hour. The entrance to the Garden is now removed to Sutton Court Road, adjoining the Vestry Hall, Turnham Green.

The Council are glad to observe the continued success of the numerous floricultural societies which have been established in various parts of the kingdom, many of which have associated themselves with the Society, and report that of all the prizes offered by them the Society's silver and bronze medals appear to be most appreciated.

The Council also note with satisfaction the progress which is being effected by associations which have taken various branches of floriculture under their especial care, such as the "Rose," the "Pelargonium," the "Auricula," and the "Carnation" Societies, and some others. They will be glad to co-operate with such societies, and afford them all facilities for holding their various exhibitions in conjunction with the ordinary meetings of the Society.

During the past year 238 free monthly tickets have been issued to students in the science and art schools, with permission to sketch in the Gardens and conservatory.

The Society has lost during the past year forty-seven Fellows by death and ninety-two by resignation. 149 new Fellows have been elected during the year.

The roll of Fellows now consists of—

837	Life Fellows.
430	Fellows paying £4 4*s.* annually.
772	,, ,, £2 2*s.* ,,
2039	

BALANCE SHEET, 31ST DECEMBER, 1879.

DR.	£	*s.*	*d.*
To Sundry Creditors on open Account	401	12	0
,, Life Composition Account	1502	17	5
,, Additional Debenture (C. J. Freake) ..	5000	0	0
,, Legacy received from the late Miss Parry ..	90	0	0
,, General Revenue Account—Balance carried forward,	840	18	8
	£7835	8	2

Cr.				£	s.	d.
By Capital				7141	18	2
,, Annual Subscriptions—Outstanding				345	9	0
,, Sundry Debtors—Garden Produce	116	14	6			
On Open Account,	65	18	11			
				182	13	5
,, Investment—3 per cent. Consols—£100 (Legacy Invested)				95	2	6
,, Cash at Bankers	69	0	0			
,, Petty Cash in hand	1	5	1			
				70	5	1
				£7835	8	2

We have examined the above Accounts with the Books and Vouchers, and find the same correct,

JOHN LEE,
JAS. F. WEST,
R. A. ASPINALL, } *Auditors.*

January 22nd, 1880. SAML. JENNINGS, *Ass. Sec.*

ANNUAL REVENUE ACCOUNT FOR THE YEAR ENDED 31ST DEC., 1879.

EXPENDITURE.

	£	s.	d.	£	s.	d.
To Establishment Expenses—						
Salaries	554	1	2			
Wages	236	12	10			
Printing, Stationery, and Cards,	210	14	5			
Postages	53	18	10			
Gas	23	5	9			
Miscellaneous	75	2	5			
				1153	15	5
,, *Special Expenses in relation to Horticulture—*						
Journal	150	15	9			
Fruit and Floral Committees	72	2	4			
Editor of the Journal	100	0	0			
Plant and Seed distribution	126	13	4			
Grants in aid	30	0	0			
				479	11	5

	£	s.	d.	£	s.	d.
To Chiswick Garden Expenses—						
Rent, Rates, Taxes, and Insurance,	267	11	6			
Labour	997	9	3			
Implements, Manure, &c. ..	139	16	4			
Coal and Coke	177	9	10			
Repairs	220	17	4			
Trees, Plants, Seeds, &c. ..	25	4	1			
Superintendent's Salary ..	150	0	0			
Water	9	10	8			
Miscellaneous	100	17	1			
				2088	16	1
,, *Kensington Garden Expenses.—*						
Rates, Taxes, and Insurance ..	491	4	5			
Superintendent's Salary ..	100	0	0			
Labour	422	3	2			
Repairs	162	18	7			
Coal and Coke	75	14	8			
Implements and Manure ..	13	1	1			
Water	9	13	3			
Reading Room	22	9	11			
Bands	127	4	4			
Trees and Plants	7	18	6			
Miscellaneous	83	17	3			
				1516	5	2
,, *Conversazione and Evening Fête*				348	15	6
,, *Exhibitions—*						
Advertising	269	14	4			
Prizes and Medals	935	7	0			
Bands	83	13	0			
Superintendent of Flower Shows,	25	0	0			
Labour	96	19	8			
Judges' Fees	16	16	0			
Sundries	183	11	2			
				1611	1	2
,, *Balance to General Revenue Account* ..				322	3	3
				£7520	8	0

INCOME.	£	s.	d.
By One-fifteenth Life Compositions as at 1st January,	633	10	0
,, Annual Subscriptions	3852	9	0
,, Exhibitions	1012	6	8
,, Promenades	36	8	0
,, Conversazione and Evening Fête	417	18	5
,, Daily Admissions	399	14	0
,, Garden Produce	634	18	11
,, Packing Charges	24	15	0
,, Miscellaneous Receipts	103	5	3
,, "Davis Bequest."—Interest appropriated under provisions of Trust towards Prize Medals,	60	17	6
,, Bank Deposit Account—Amount withdrawn,	340	0	0
,, Interest on ditto	4	5	3
	£7520	8	0

SAMUEL JENNINGS, *Assistant Sec.*

We have examined the above Revenue Account with the Books and Vouchers, and find the same correct.

R. A. ASPINALL,
JOHN LEE,
JAS. F. WEST,
} *Auditors.*

January 22nd, 1880.

GENERAL REVENUE ACCOUNT, 31ST DECEMBER, 1879.

DR.	£	s.	d.
To Amount withdrawn from Deposit and transferred to Annual Revenue	340	0	0
,, Allowances made on Garden Sales on 1878 Account,	1	1	2
,, Balance carried forward as per Balance Sheet ..	840	18	8
	£1181	19	10

CR.	£	e.	d.
By Balance of Revenue Account brought forward 1st January, 1879	859	16	7
,, Annual Revenue Account—Balance for the year 1879,	322	3	3
	£1181	19	10
By Balance carried forward ..	£840	18	8

We have examined the above Account with the Books and Vouchers, and find the same correct.

R. A. Aspinall,
John Lee,
Jas. F. West,
Auditors.

Samuel Jennings, *Assistant Secretary.*

January 22nd, 1880.

March 9th, 1880.

ORDINARY GENERAL MEETING.

Dr. M. J. Masters in the Chair.

Elections.—Mrs. Abbott, Sutton Abbott, Frederic J. Alexander, George A. Ballard, Rev. William B. Banyard, William Brett, Mrs. Fullarton, Henry Garbutt, Lord Garvagh, Benj. Hardy, Mrs. G. H. Jupp, Robert Lathbury, Horace R. Pinder, Joseph R. Starling, John J. Thornycroft, William Tubb, John Winchworth.

Medals Awarded.—Bronze Banksian, James Carter and Co., for a group of Primulas; Bronze Banksian, B. S. Williams, for a group of Cyclamens; Silver Banksian, Barr and Sugden, for a group of Cyclamens; Bronze Flora, J. Wills, for a group of Dracænas; Silver Banksian, Osborn and Sons, for a group of Plants; Silver Banksian, William Paul and Son, for cut blooms of Camelias; Silver Banksian, J. Aldous, for a group of Plants; Large Silver Banksian, Henry Little, for a group of Cinerarias; Silver Banksian, William Bull, for a group of Orchids.

Few of the Society's meetings thus early in the year after such an unfavourable season have been brighter or more interesting than the one held on this occasion. Plants were exhibited in large numbers, one side of the conservatory being entirely occupied with groups of Orchids, Cyclamens, Cinerarias, and miscellaneous flowering and foliage plants, while in the Council Room were arranged a number of rarities of considerable interest horticulturally and botanically. The Fruit Committee had nothing whatever to do, for there was not a single entry of fruits or vegetables.

SCIENTIFIC COMMITTEE.

SIR J. D. HOOKER, K.C.S.I., in the Chair.

Galvanized Wire and Peach Shoots.—The Rev. G. Henslow gave an account of the microscopical appearances in the shoot referred to him at the last meeting. The younger tissues were quite dead, but whether death resulted from mechanical pressure, or from some destructive chemical action set up by the galvanised wire, there was no evidence to show. Dr. Masters showed another specimen received from Mr. Hudson, gr., Gunnersbury House, and which had been so tied that no injurious constriction could have taken place, though possibly some amount of friction might have occurred occasionally. The appearances presented were consistent with the notion that the effects were due to frost.

Plants Exhibited.—From Mr. Bull, Fritillaria oranensis; from Mr. G. F. Wilson, Begonia, sp., referred to Kew for name; from Rev. H. Harpur-Crewe, Galanthus Redoutei, a remarkably distinct species, with almost globose flowers, and leaves like those of Scilla amœna; and Corydalis Kolpakowskyana, with flowers of pale flesh-colour.

Effects of the Winter of 1879-80.—On the suggestion of Mr. Elwes, a sub-committee was appointed to collect evidence as to the effect of the severe frost on vegetation.

Electric Light.—Mr. W. T. Thiselton-Dyer proposed the appointment of a sub-committee to investigate certain points of vegetable philosophy of interest to cultivators by means of the electric light. There was reason to believe that facilities for the purpose might be obtained at Kew in connection with the Jodrell laboratory.

FLORAL COMMITTEE.

DR. DENNY in the Chair.

The principal nurserymen's groups were arranged in the conservatory, and one of the first to be noticed was that from Messrs. Osborn and Sons, Fulham—a large and ornamental group of plants very tastefully arranged. Rhododendrons, Azaleas, Guelder Roses, and Spiræas formed the bulk of the group, a few plants being employed to lighten it, and the margin was composed of Crocuses, Scillas, and Iris reticulata in pots placed alternately. The general effect was remarkably bright and pleasing. A silver Banksian medal was deservedly awarded by the Committee for this handsome exhibit. Mr. J. Aldous, florist, Gloucester Road, South Kensington, obtained a similar award for a neat group of Palms, Ferns, Hyacinths, and Lilies of the Valley. The two latter were remarkably good, some spikes of white Hyacinths being unusually large, and bearing good bells. The group would, however, have appeared better had more brightly coloured flowering plants been employed in conjunction with the Lilies and Hyacinths. Mr. William Bull, Chelsea, was adjudged a silver medal for a fine group of Orchids and choice plants in excellent condition. The chaste and sweetly scented Pilumna fragrans, the orange-coloured Ada aurantiaca, Odontoglossoms, Dendrobiums, Masdevallias, and Lycastes were all well represented. Epacris onosmæflora nivalis flore-pleno is a remarkably pretty double white variety, somewhat resembling in habit Epacris purpurascens. Several new hybrid Rhododendrons of the jasminiflorum-javinicum type were shown, including some with very delicately tinted wax-like flowers. Oncidium Kramerianum was bearing large and deeply coloured flowers, which resemble but surpass the Butterfly Orchid, O. Papilio.

Mr. B. S. Williams, Upper Holloway, exhibited a group of Cyclamens very well flowered, and some of good size and substance. One variety, Brilliant, was noticeable for its brilliant crimson colour. Several of the white varieties were also in vigorous health. A bronze Banksian medal was awarded. Messrs. Barr and Sugden, 12, King Street, Covent Garden, staged a large group of Cyclamens, comprising about 140 plants. They were all in 48-size pots, the vigour and size of the plants being remarkable. The flowers were noticeable for their great size and substance. Cut blooms of the lovely Iris reticulata and its variety Krelagei, together with blooms of Megaseas, were also shown. A silver Banksian medal was awarded. Mr. John Wills, South Kensington, was awarded a bronze Flora medal for a group of Dracæna terminalis alba, a very useful plant for decorative purposes, and very clearly variegated. The plants exhibited were in small pots, but in excellent health.

Messrs. James Carter and Co., High Holborn, exhibited plants of a "new blue Primula" named Lady Probyn. The flowers were of a rather dull pale lavender blue tint, but not sufficiently distinct and ornamental to justify the Committee in awarding it a certificate, though they expressed a desire to see it again upon a future occasion. There is no doubt but that this is a step in the right direction, and may possibly lead to better results. For the group of Primulas a bronze medal was awarded. Messrs. W. Paul and Son, Waltham Cross, sent nine boxes of superb Camelia blooms, comprising about 180 flowers. One box of L'Avenir was specially noticeable; the flowers of this variety are very regularly imbricated of a bright pink colour with a faint streak of white down the centre of each petal. Countess of Derby is also a very good variety; the flowers are well formed and of a delicate pink hue. Countess de Hainault, flowers neat and delicately suffused with pink. Madame Lebois, flowers of moderate size, well formed, and of warm pink or crimson tinge. Many other excellent varieties were also shown, the old alba plena and imbricata being in good condition. A collection was also staged in the Council-room, a vote of thanks being accorded by the Committee.

Mr. Wiggins, gardener to Henry Little, Esq., Hillingdon Park, Uxbridge, exhibited some extraordinarily fine Cinerarias and Primulas. Of the former some of the flowers were over 2 inches in diameter; the colours also were unusually rich and good. Extremely deep purple, crimson, maroon, and blue were well represented. The plants were also remarkably vigorous and healthy. The Primulas included some good whites. One of the latter was in a small 48-pot, and bearing over nine trusses of excellent flowers. Primula Meteor was awarded a first-class certificate; it is of dwarf habit, and the flowers of brilliant crimson hue. A Cyclamen was also exhibited, one of the finest ever staged, over 2 feet in diameter, and bearing more than a hundred fully expanded white flowers of great size and excellent form. A cultural commendation was awarded. Amaryllises were shown in extraordinary vigour, one specimen bearing no less than ten flowers on two scapes, one with four and the other with six. A large group of miscellaneous plants was sent from the Society's garden at Chiswick; Abutilons, Ferns, Imantophyllum miniatum superbum, and Wistaria sinensis being very freely employed. The latter plants were 4 or 5 feet high that had been forced similarly to Lilacs and Guelder Roses, and their fine racemes of fragrant purplish flowers were very attractive.

In the Council Room a number of plants were staged, some of the most noticeable being those from Messrs. James Veitch and Sons. This collection comprised new and beautiful plants, including Orchids, Amaryllises, Ferns, and other plants. A first-class certificate was awarded for Polystichum tripteron, a neat species with pinnate fronds, bipinnate at the base. A cultural commendation was accorded for Dendrobium crassinode Barberianum, with two long growths bearing about thirty flowers each. The fine lilac-coloured Primula pulcherrima and the rich deep red-coloured Azalea indica Souvenir de Comte de Gomer were shown with several bright Amaryllises. Plants of the "red Gloire de Dijon," the Rose Reine Marie Henriette, were also exhibited. A collection of Japanese Abies was also staged. Mr. Thomas Speed, The Gardens, Chatsworth, was accorded a vote of thanks for a fine specimen of Renanthera coccinea, over 6 feet high and bearing two large panicles of flowers that had, however, been somewhat damaged in transit. Mr. J. King, gardener to G. Simpson, Esq., Wray Park, Reigate, exhibited some new Abutilons, for one of which named Purity, bearing flowers of good size, a second-class certificate was awarded. Mr. J. James, The Gardens, Redlees, Isleworth, exhibited cut flowers of Cinerarias of superb size, form, and colour. A first-class certificate was awarded for plants of a very distinct and pretty variety—Master Harold, the flowers of excellent form and bright crimson colour with a narrow circle of white in the centre. Mr. Robert Greenfield, The Priory Gardens, Warwick, obtained a first-class certificate for a novel double Cineraria named Mrs. Thomas Lloyd. The plant was of dwarf habit, the flowers being perfect little crimson-purple balls about 1½ inch in diameter.

Mr. H. Cannell, Swanley, sent plants of Cineraria Intensity with good flowers, the colour of which was a deep rich purplish blue, very distinct and pretty; also plants of a pale lilac blue Polyanthus, Primula elatior cœrulea. He also exhibited plants of Fuchsia pendulæflora, for which a first-class certificate was awarded. The leaves are long and elliptical; the crimson flowers being tubular and borne in pendulous corymbs. Messrs. E. G. Henderson and Son, Pine Apple Nursery, Maida Vale, contributed a collection of double Primulas; the double white Princess of Wales and Blushing Beauty, and the lilac-tinged Miss Eva Fish, were the most noticeable. Mr. H. Harding, The Gardens, Orton Hall, Peterborough, was accorded a vote of thanks for flowers of Clianthus puniceus and C. Dampieri, the latter being extremely fine. Mr. W. Rapley, gardener to G. Brand, Esq., Bedford Hill House, Balham, sent a Cineraria with flowers of great size and rich crimson colour. Mr. R. Dean, Ealing, sent some bedding Primulas and Polyanthuses, Primula lilacina and P. auriculæflora being very pretty.

March 23, 1880.

ORDINARY GENERAL MEETING.

H. J. Elwes, Esq., in the Chair.

Elections.—George Banbury, George Walter Davidson, Major R. G. Ellison, Mrs. Arthur Howell, Capt. A. L. Patton, Miss Reeve, William H. Tuck, Mrs. M. Ware, Mrs. Wilson.

Medals Awarded.—Large Gold Banksian, J. Veitch and Son, for a group of Amaryllis; Large Gold Banksian, General Horticultural Company (John Wills, Limited), for a group of Plants; Gold Medal, Capt. Patton, for group of Hyacinths, Spiræas, &c.; Gold Medal, W. Bull, for group of Orchids and New Plants; Large Silver Banksian, H. B. Smith (Ealing), group of Cyclamens; Silver Banksian, W. Cutbush and Son, for a group of Hyacinths, Tulips, &c.; Silver Banksian, J. Aldous, for Bouquets; Silver Banksian, B. S. Williams, for group of Plants; Silver Flora, Osborn and Sons, group of Hyacinths, Tulips, &c.; Silver Flora, J. Veitch and Sons, for group of Hyacinths.

Rarely has a more satisfactory and interesting meeting to be recorded than on this occasion. The exhibits were not nearly so numerous as is usually the case, but they were of such extraordinary dimensions that the collections from three exhibitors occupied one entire side of the conservatory. Very few plants were staged in the Council-room, and these were ultimately removed to the conservatory, where the other exhibits were arranged on tables down each side of the central path. Hyacinths were extremely numerous, the combined collections of Capt. Patton and Messrs. Veitch, Osborn, and Cutbush numbering over eight hundred, including all the best varieties in cultivation. The effect produced by the diversified colours of these plants, and the tastefulness displayed by the exhibitors in arrangement, awakened considerable admiration on the part of the visitors. The other great feature of the meeting was Messrs. Veitch's gigantic collection of Amaryllises, which occupied nearly a fourth of the entire staging, and comprised more than three hundred plants, a large number of varieties being represented, many new and of great excellence. Messrs. Williams' and Bull's Orchids, and the remarkably beautiful group of plants from the General Horticultural Company arranged in Mr. Wills' artistic style, all combined to impart considerable pleasure to the numerous visitors that assembled during the afternoon.

FLORAL COMMITTEE.

Dr. Denny in the Chair.

The chief part of the Committee's duties lay in the conservatory, for there were few new plants exhibited. As we have indicated the general appearance of the display we may now briefly describe the individual exhibits.

Messrs. Veitch and Sons, Chelsea, contributed two large collections of plants, one comprising about 120 Hyacinths in superb condition, unquestionably the finest of all those exhibited. The new forms were awarded first-class certificates—namely, Queen of the Yellows and Cavaignac. The Amaryllises have been already referred to, and it only remains to note the following, for which first-class certificates were awarded. Empress of India, a handsome variety with flowers of great size (about 8 inches in diameter), symmetrically formed, of a rich scarlet colour with a narrow white stripe down the centre of each division of the perianth; four flowers were borne on each scape. King Arthur, a very distinct and neatly formed variety. The flowers were somewhat circular in outline, the ground colour being a greenish white peculiarly streaked and mottled with crimson round the margin of the perianth divisions. Storr's Beauty, a smaller flower than the other varieties, but of good form and rich deep scarlet, each scape bearing three flowers. For the Hyacinths a silver Flora medal was awarded, and for the Amaryllises a large gold Banksian medal.

Captain Patton, Abbey Road, St. John's Wood (gardener, Mr. Boultwood) staged an enormous collection of Hyacinths, numbering nearly four hundred plants, and including a large number of varieties. They were well grown and fairly well arranged, but the exceptionally deep pots were a great disfigurement, although they were partially concealed in the front row by a margin of Isolepis gracilis. The centre of the group was occupied with some good Tulips in rather large pots, and Lilies of the Valley in pans. The background was composed of Dielytras and Spiræas arranged alternately, and produced a most delightful effect, the specimens being exceptionally fine, upwards of 3 feet across. Both were excellently flowered, indeed finer plants were never exhibited. A very neat label was employed which is deserving of notice. A small wire clip held a card about 3 inches long by 2 wide, with a narrow gilt margin, and on this the names were written in an extremely elegant hand. For this handsome group a gold medal was deservedly awarded. Messrs. W. Cutbush and Son, Highgate, were adjudged a silver Banksian medal for a group of Hyacinths, Tulips, and Lilies of the Valley, the colours of the former being very good and well arranged. The Hyacinths included many handsome varieties. Messrs. Osborn and Son, Fulham, were awarded a silver Flora medal for groups of Hyacinths and Tulips. They staged about two hundred handsome Hyacinths, the varieties being well selected, and their general condition extremely good. About sixty Tulips were exhibited, and a group of miscellaneous flowering and foliage plants.

One of the largest and most attractive groups of miscellaneous plants was that from the General Horticultural Company (Limited), Mr. John Wills, manager. This comprised a great number of plants, including Orchids, Ferns, flowering plants, Palms, and Crotons. It was especially noticeable for the diversified style of arrangement adopted, remarkably distinct from the formality which usually characterises groups of this distinction. Adiantums and choice Orchids were most charmingly intermingled, Selaginella Kraussiana and Isolepis gracilis forming an agreeable margin. A number of Lilacs were also introduced with a very pleasing effect. A large gold Banksian medal was accorded for this elegant group. Mr. W. Bull of Chelsea exhibited a large number of Orchids, Palms, and Cycads, including many of great beauty and rarity. The delicate little Odontoglossum membranaceum was represented by a specimen bearing several of its prettily marked flowers; Anguloa Clowesii had two of its fine yellow fragrant flowers; Odontoglossums were also numerous, such species as O. triumphans, O. cirrhosum, and O. Alexandræ being in fine condition. Many Cattleyas, Lycastes, and other well-known Orchids assisted in forming a highly attractive collection. The double Epacris onosmæflora, which we have noticed on several previous occasions, was again exhibited in good form. It is an excellent plant either for decorative or cutting purposes. A gold medal was awarded.

Mr. B. S. Williams, Upper Holloway, sent a collection of Orchids, including Cypripediums, Odontoglossums, Cattleyas, Lycastes, and Cœlogynes in excellent condition. Cattleya amethystoglossa was especially noticeable, one raceme bearing about two dozen large flowers. Nearly three dozen Amaryllises were shown, several of the varieties being noticeable for their brilliancy of colour, particularly Grandidens, Firefly, Ackermanni pulcherrima, and Princess Dagmar. Loveliness is also a pretty variety, the flowers being white streaked with crimson. A first-class certificate was accorded for Amaryllis Exquisite, a beautiful variety. Four large flowers were borne on one scape, of great substance, symmetrical form, and bright scarlet colour, with a clear band of white down the centre of each petal. A cultural commendation was awarded for Imantophyllum miniatum Martha Reimers, one scape bearing about thirty richly coloured flowers. For the group of Orchids a silver Banksian medal was accorded. Messrs. Carter and Co., High

Holborn, exhibited plants of the certificated varieties of Cyclamen raised a year or two ago by Mr. H. B. Smith of Ealing—namely, Rosy Morn, Duke of Connaught, Queen of the Belgians, and persicum picturatum, all extremely fine varieties both in colour, floriferousness, and size of flowers. Mr. H. B. Smith, Ealing Dean Nursery, also exhibited a superb collection of Cyclamens, including two or three hundred fine plants in 48-size pots. They were all characterised by the vigour, size, and substance of flowers for which Mr. Smith is so noted. A silver Banksian medal was awarded. Mr. Aldous, florist, Gloucester Road, obtained a silver Banksian medal for a group of Cinerarias, Spiræas, Heaths, Ferns, and Palms, together with two handsome bouquets, one entirely composed of Roses, and the other of Roses, Orchids, and Eucharises. Mr. Greenfield, The Priory Gardens, Warwick, obtained a certificate for an excellent double Cineraria named Mr. Thomas Lloyd; the heads were nearly globular in form, of a deep purplish blue colour. Messrs. Jackson and Son of Kingston exhibited several Primulas, notably P. rosea and a pretty variety of P. denticulata. The peculiar Arisæma speciosum was sent from the Society's Chiswick garden.

FRUIT COMMITTEE.

HENRY WEBB, Esq., in the Chair.

A collection of plants was exhibited by Dr. Siemens, showing the effect of electric light on vegetation. There were three pots of Carrot roots, three pots of Mustard, and two flowers of Calla æthiopica. One of each of the two former were subjected to continuous electric light, one to daylight and electric light, and one to daylight only. In the case of the Carrots the advantage was clearly in favour of continuous electric light, but in the case of the Mustard there was no perceptible difference between equal electric and daylight and daylight only, except that the former was a shade darker in colour; but in the case of electric light only, the effect was very inferior to either of the former. In the case of the flowers of Calla the difference was very perceptible; that which was produced under the influence of the electric light being fully expanded, while the other which was exposed to daylight only was only partially so. Unusually fine examples of Vanilla were exhibited by Mr. T. H. Sutton, The Gardens, Worksop Manor, Notts, which deservedly received a cultural commendation. A dish of Mickleham Pearmain Apple was exhibited by Mr. J. Burnett, Deepdene Gardens, Dorking; and a collection of Apples and Pears was exhibited by Mr. G. Goldsmith Hollander, Tonbridge, and received a letter of thanks.

During the afternoon Mr. Shirley Hibberd, on the invitation of the Council, delivered an excellent lecture on the history and characteristics of the Hyacinth and Amaryllis, compiled from the works of the "grand old masters, who produced books that put to the blush the puny productions of the modern horticultural press." From the writings of Gerarde, Parkinson, Lyte, and Miller he gathered much of interest relative to this popular flower, "which once mustered two thousand named varieties, but now probably reduced to a thousand, from which, the lecturer observed, "seven hundred might be eliminated without serious loss." The Amaryllis, or, as Mr. Hibberd observed, more properly the Hippeastrum, was also briefly referred to.

SCIENTIFIC COMMITTEE.

Sir J. D. Hooker, K.C.S.I., in the Chair.

Report on Injurious Insects.—A copy of Miss Ormerod's report for 1879 was presented by the reporter, and in reference to it mention was incidentally made of the circumstance that the author was collecting materials for a complete history of the remedies available for dealing with various insect pests, and would feel indebted to any observers who would furnish her with accurate information on the subject.

Plants Shown.—Mr. Elwes showed a spray of a Vaccinium known as V. Morteni, a very pretty greenhouse shrub, with small ovate eaves and racemes of clear white bell-shaped flowers. As there was some doubt as to the name a further report will be made. A Fritillaria from Japan was shown by Messrs. Veitch, and is supposed to be F. verticillata var. Thunbergii. It has long linear leaves terminating in a tendril and small greenish-yellow, bell-shaped flowers, faintly mottled with purple. Colonel Clarke showed a yellow Chrysanthemum in full flower, and explained the method by means of which he succeeded in getting the plant to flower at so unseasonable a time. The plant, when the flowering period is over, and after a short rest, is put into a steaming hot temperature for a time, with the result of causing the development of heretofore latent buds on the young stem. Colonel Clarke also showed a spray of the Lace Bark, Lagetta lintearia, in bloom. The broadly ovate leaves are of a rich green colour, while the cylindrical flowers are of an opaque white. The name lace-bark was given on account of the netted character of the inner bark, which is used as a substitute for lace in Jamaica. A curious Begonia from Cochin China, with prostrate stem and obliquely ovate leaves of a purplish colour with a central blotch, was shown by Messrs. Veitch, and excited much curiosity. It was not in a condition for determination, but had the provisional name of B. Davidiana.

Wood from Gravel Deposit.—Mr. W. G. Smith exhibited a piece of a tree-branch recently thrown out from the base of a 25 feet excavation of sand and gravel at Shackelwell. The wood dated back from the deposition of the gravel and sand by the Thames at this place. The drift deposit here belongs to one of the higher and older terraces of the river.

Japan Birch.—Dr. Masters showed, for Messrs. Maule, of Bristol, a portion of the trunk of this tree, perhaps a variety of B. utilis (see *Gardeners' Chronicle*, 1876, vol. v., p. 360). The bark was of peculiarly silvery-white papery nature and very beautiful. Messrs. Maule write—

"The specimen of Japan Birch is cut from a tree in our nurseries. We got it from seed at the same time we raised Pyrus Maulei. We do not consider that there are two species. The specimens sent you we considered were all the same, as even the common Birch differs a little from seed; but all of these Japan Birches are paper-barked and silver without exception. You know that our common Birch is sometimes silver-barked and papery, but not always, and they do not assume this until old trees. This Japan Birch is a very robust grower, does not run up like the common Birch, and will make a useful tree. We have about ten large trees, 15 to 20 feet high, and several hundreds 2 to 3 feet. We intend increasing it, as it seeds freely."

Forcing by Electric Light.—Dr. Masters brought forward some specimens exhibited by Mr. Buchanan, gardener to Dr. Siemens, and commented on the new power placed in the hands of the gardener by the agency of the electric light. The specimens from Dr. Siemens' gardens consisted of—

1. Three pots of seedling Mustard, one of which had been exposed to the electric light, one to the daylight, and one to both—other conditions being equal. In this case there was not much difference in point of vigour, but the plant which had been exposed to solar and electric light was darker in colour.

2. The buds of Countess of Oxford Rose, one exposed to the electric light for forty-eight hours, one grown as usual. The bud under the electric light was considerably more advanced.

3. Two spathes of Calla æthiopica, one grown in the ordinary manner, the other subjected for forty-eight hours to the electric light. In this case the difference was exceedingly striking, the plant which had been grown under the electric light being greatly in advance of the other. Cut specimens similarly treated manifested an equally striking difference.

4. Three pots of Carrots, three in each pot; one had been exposed to continuous light, first solar, and then electric; one had been exposed to the electric light only, and one had been exposed to daylight only—all other conditions being uniform. In these latter specimens there was very little difference between the plants grown under solar and those under the electric light, but the plants subjected to both were greatly superior in vigour and colour.

Insects Injurious to Cypress.—Further specimens were sent by the Hon. and Rev. J. T. Boscawen, which were referred to Mr. MacLachlan. The injuries inflicted were very serious, the whole of the branches on the lower two-thirds of the tree being killed.

Retirement of Mr. Jennings.—Dr. Masters moved, and Colonel

Clarke seconded, a resolution expressing the regret of the committee that they were about to lose the services of Mr. Jennings, and conveying the thanks of the committee to Mr. Jennings for the ability and courtesy he had displayed as secretary to the committee. The resolution was carried unanimously. An expression of regret was also made that the Council had not notified to the committee the fact that the services of Mr. Jennings were to be discontinued.

APRIL 13, 1880.

ORDINARY GENERAL MEETING.

JOHN DENNY, Esq., M.D., in the Chair.

Elections.—Alex. Gordon, Mrs. B. F. Hartshorne, Mrs. H. F. C. Lewier, J. B. Mackay, T. J. D. Mackintosh, Mrs. Constance Talbot, General Hill Wallace, C.B.

Medals Awarded.—Gold Medal, General Horticultural Co. (John Wills, Limited) for group of Plants; large gold Banksian, J. Veitch and Sons, for group of Orchids; Silver Banksian, Osborn and Sons, for group of Plants; Silver Banksian, J. J. Hayes, for group of Pelargoniums; Silver Banksian, J. Aldous, for group of Plants.

Although the exhibits were not unusually numerous on this occasion, they were of great interest. The majority were arranged in the conservatory, where the groups from Messrs. Veitch, Osborn and the General Horticultural Company formed the chief attractions. There were no entries of fruit or vegetables. The system adopted at this meeting of placing in the Council Room a list of the exhibitors to whom medals were awarded, and of the plants for which certificates were granted, deserves great commendation.

FLORAL COMMITTEE.

DR. DENNY in the Chair.

The most attractive group in the conservatory was that contributed by Messrs. Veitch and Sons, Chelsea, which was composed of a large number of handsome Orchids, Rhododendrons, and a few Palms. About 160 Orchids were shown, comprising some good specimens of the most attractive species and varieties in cultivation, many choice and delicate forms being represented. Dendrobiums were particularly numerous, and an excellent idea of the exceptional beauty of this genus could be gained from the species in the collection. The lovely D. Dalhousieanum was bearing two racemes of its large pale buff-coloured flowers, the labellums having near the base two large roundish deep purple blotches; D. Devonianum had four growths with about fifty flowers, the whitish petals, sepals, and labellums being tipped with purple, and the latter marked with yellow in the centre; D. chrysotoxum was bearing nearly twenty fine racemes of bright yellow neatly formed flowers; D. densiflorum had three large racemes of flowers, the white sepals and petals pleasantly contrasting with the golden labellums; D. Farmeri, a very beautiful species, had large recemes of flowers, the sepals and petals pale blush white, the roundish labellums being pale yellow in the throat; D. Jamesianum had pure white flowers, a long labellum blotched with bright orange red in the centre; D. tortile reseum was noteworthy for the pale purple, narrow, curled sepals and petals, with a somewhat trumpet-shaped pale yellow labellum; D. infundibulum somewhat resembled D. Jamesianum, the petals, however, were much broader, the labellum larger, more frayed, and marked with chrome yellow; the bright purple D. lituiflorum, the well-known D. crassinode, D. nobile, and the small-flowered pure white D. japonicum, together with others, were admirably represented. Fifty-seven Odontoglossums were staged, including O. Roezlii, O. triumphans, O. nebulosum, O. cirrhosum, O. pulchellum, O. cordatum, O. Pescatorei, and many other equally attractive forms in fine condition. Lycastes, Oncidiums, Cattleyas, Masdevallias, and Epidendrums were represented by good specimens.

Among the specialities were Hunleya Meleagris, a Brazilian Orchid, with large peculiar brownish flowers, produced singly in the axils of the leaves. A fist-class certificate was awarded for it. Lælia flammea, a hybrid between L. cinnabarina and L. Pilcheriena, with narrow orange-coloured sepals and petals, and a crimson-tipped labellum. Odontoglossum Cervantesii decorum, a large-flowered form of this beautiful species, and a remarkably richly-coloured variety of Sophonites grandiflora. Handsome specimens of Rhododendron Princess Alice and R. Veitchii were exhibited, the plants of the former bearing an immense number of large white fragrant flowers. First-class certificates were granted for the following—Calanthe tricarinata, a hardy Orchid, with racemes of small yellowish green flowers; Amaryllis Prince George, the flowers of which were large, of good form and breadth of petal, and rich crimson in colour. For this excellent group a large gold Banksian medal was awarded.

A tasteful group was sent by the General Horticultural Company, comprising Palms, Ferns, Dracænas, Orchids, Azaleas, Caladiums, Anthuriums, and many other attractive plants. In the centre was a cluster of Odontoglossum vexillarium, one specimen bearing nearly three dozen fine flowers. Some deeply coloured varieties of this beautiful species were also shown. Among the Dracænas D. Gladstonii, D. Berkleyi, D. Elizabethæ, D. Anerleyensis, and D. Rebeccæ were especially noticeable for their finely coloured foliage. The new Fern Adiantum Bausii was represented by specimens which showed the elegant drooping habit to the best advantage. A gold medal was awarded. Mr. Aldous, florist, Gloucester Road, was adjudged a silver Banksian medal for a large group of Spiræas, Deutzias, white Hyacinths, and Chrysanthemum frutescens intermixed with Palms, Ferns, and Selaginellas. A cross and wreath of white flowers, such as Eucharis, white Lilac, Stephanotis, Lilies of the Valley, and white Camellias were also exhibited. Messrs. J. and J. Hayes, Edmonton, exhibited about twenty plants of Pelargonium Maid of Kent, an excellent variety of compact habit and remarkably floriferous; the trusses of moderate size, the flowers very densely crowded, the petals being white slightly crimped round the margins, and veined with rosy purple in the centre. A silver Banksian medal was awarded.

Messrs. Osborn and Sons, Fulham, sent a collection of Azaleas, Palms, Ferns, Anthuriums, Imantophyllums, and other stove and greenhouse plants, which was honoured with a similar award to the last mentioned group. Messrs. Barr and Sugden, Covent Garden, staged an excellent collection of Narcissi comprising a very large number of the best varieties and species, representing nearly all the sections of the genus admirably. Mr. J. Walker, Thame, Oxon, exhibited two boxes of Roses, one containing over thirty remarkably handsome blooms of Maréchal Niel, and the other containing very good examples of Belle Lyonnaise, Cheshunt Hybrid, Madame Falcot, John Keynes, Lamarque, Madame Favart, Climbing Devoniensis, Jules Margottin, Niphetos, and Comtesse d'Oxford. A cultural commendation was deservedly awarded for these fine blooms.

Comparatively few plants were staged in the Council-room, and nearly all of them were subsequently removed to the conservatory. Mr. B. S. Williams, Upper Holloway, exhibited several plants for certificates, which were granted for the following—Choisya ternata, a pretty evergreen Mexican shrub, that, although by no means new, is not very common in gardens. The white fragrant flowers are borne in terminal heads, the ternate leaves being dark shining green; and Coleus Mrs. Geo. Simpson, a very distinct variety with extremely large leaves marked with maroon and crimson. The Cranston Nursery Company, King's Acre, Hereford, exhibited blooms of a seedling Tea Rose, dull rosy crimson in colour but rather loose; and a first-class certificate was awarded to them for cut flowers of Hoya globulosa, an extremely pretty species with dense globular heads of creamy white highly fragrant flowers. G. F. Wilson, Esq., Weybridge, exhibited a seedling Primrose named Herman Wilson, for which a first-class certificate was granted. The flowers were large, of good form and rich purple in colour, with a clearly defined yellow edge. A first-class certificate was awarded to Mr. Walter Cobb, Silverdale Lodge, Sydenham, for Odontoglossum polyxanthum, a pretty species, with pale yellow sepals and petals spotted with brown, and a dull brown fringed labellum. Mr. H. Cannell, Swanley, sent cut blooms of Zonal

Pelargoniums in excellent condition, comprising such fine varieties as Titania, Col. Seely, Alice Spencer, Cleopatra, Lizzie Brooks, Sybil Holden, Alice Carr, and New Guinea.

Mr. Howard, Southgate, obtained a first-class certificate for Chrysanthemum frutescens Etoile d'Or, a pale yellow free-flowering form of this well-known useful plant. The same honour was bestowed on Fritillaria Moggridgei, a dwarf species with drooping yellow-spotted flowers, from Messrs Backhouse and Son, York. Mr. John Linden, Ghent, Belgium, sent a specimen of a handsome Anthurium from Colombia, named A. Andréanum. The spathe was about 4 inches long and broad, of an extremely bright scarlet colour, and curiously bullated or indented like a Savoy leaf; the spadix was white at the base and yellowish at the apex. Dried specimens were also exhibited which showed the spathes much larger than in the living plant. For this very distinct plant a first-class certificate was granted. Mr. Linden also showed a specimen of Azalea indica gardeniæflora, a variety with semi-double white flowers. Mr. Bennett of Salisbury exhibited flowers of the Hybrid Tea Rose Duke of Connaught, very neat in form and rich colour. A vote of thanks was accorded to Mrs. Ashton, 6, Elgin Road, St. Peter's Park, for dried natural flowers, in which the colours were excellently preserved.

During the afternoon Mr. Shirley Hibberd delivered an instructive and interesting lecture on Narcissi (see page) which was largely attended by an appreciative audience.

SCIENTIFIC COMMITTEE.

A. Grote, Esq., in the Chair.

Insects found upon Cypress.—The Hon. and Rev. J. T. Boscawen sent further specimens of Cypress with the insects upon them, and which it is alleged eat into the young shoots and cause their destruction. Mr. MacLachlan stated that he had now examined several specimens sent by Mr. Boscawen, and was of opinion that the declining condition of the tree was not caused by the attacks of the insects in question but by the frost, injury to the root, or some other cause. The insects were of two kinds, one belonging to the

Psocidæ, called Stenopsocus cruciatus, the other an Aphis. The species of Psocus are not known to feed on living tissues, but only dry dead bark. There were no signs of the twigs having been gnawed by any insect.

Plants and Specimens Exhibited.—Mr. Linden sent Anthurium Andréanum, a highly remarkable species from Colombia, with thick scarlet corrugated spathe, and an ivory-white spadix tipped with yellow, which is described upon page lix.

Mr. B. S. Williams sent Eria extinctoria, to which a Botanical Certificate was awarded.

Messrs. Backhouse sent a potful of a handsome yellow-flowered Fritillary from the Riviera, under the name of F. Moggridgei (Boiss., in *Moggr. Cont. Ment.*, t. 25), and which is considered by Mr. Baker (*Journ. Linn. Soc. Botany*, xiv., p. 255) to be a variety of F. delphinensis of Grenier. Mr. B. S. Williams sent, under the name of Nephrodium, Lastrea membranifolia, a Fern distributed throughout the hotter parts of India and Australia. Messrs. Veitch sent a Masdevallia, M. Chelsoni ×, a hybrid raised in their establishment between M. amabilis and M. Veitchiana. As an ornamental plant it presented no advantage over its parents. M. Wageneriana, a new species, was also shown. The yellow-flowered variety of Chrysanthemum frutescens, called Etoile d'Or, was shown, and its history commented on. The Cranston Company sent cut flowers of a very pretty Hoya, with flowers in globose umbels; the leaves are oblong-acuminate and downy on the under-surface. The species is belived to be new, and will be named at Kew. Flowers of Abutilon Sellowianum were shown from Mr. George.

Catalogus Plantarum.—Dr. Masters showed a copy of a folio work under this title, drawn up by a society of gardeners in 1730, including Philip Miller, Thomas Fairchild, and other notable garden botanists of the day. The work is illustrated by twenty-one coloured plates, from the pencil of the famous flower-painter, Van Huysum. The purport of the book was to furnish an illustrated and descriptive "catalogue of trees and shrubs, both exotic and domestic, which are hardy enough to bear the cold of our climate in the open air." Only one part was issued, apparently under the editorship of Philip Miller. The book is mentioned in Johnson's *History of Gardening*, but is not catalogued in Pritzel, though the beauty and fidelity of the illustrations are such as to warrant it being noted in any catalogue of botanical literature.

Effects of the Frost of the last Winter upon Plants.—A communication was read from Mr. Elwes on this subject, with suggestions as to the best means of obtaining and tabulating the requisite information.

Plants supposed to be Poisonous to Sheep.—Rev. George Henslow showed a specimen of a Carex, supposed to have proved poisonous to sheep. In the opinion of the committee the plant had nothing to do with the disease.

Fungus on Glass.—Rev. George Henslow showed a specimen of an abnormal Polyporus found growing on the glass of a greenhouse, to which it had probably extended from the rafter.

Fritillaria sp. ?—Rev. H. H. Crewe showed a Fritillaria, received from Dr. Regel, and which was referred to Mr. Baker for identification.

The meeting then adjourned.

April 27, 1880.

ORDINARY GENERAL MEETING.

Sir Trevor Lawrence, Bart., M.P., in the Chair.

Elections. — Charles Abercrombie, Sir William N. Abdy, Bart., Edward Alexander, Miss Mary A. R. Adamson, Mrs. Armstrong, Vincent Bailey, Algenever Bathurst, Edward K. Bridger, Mrs. Hesketh Case, Henry Cassoon, F. S. Chapman, C. J. Dance, Sir T. D. Forsyth, K.C.S. J.C.B., A. Cecil Gibson, Robert H. Hamilton, James Lord, W. J. Martin, Mrs. Maxwell, George Petrie, George H. M. Ricketts, C.B., Charles Silverlock, Charles J. Wade, Edward Woods.

Medals Awarded.—Gold Medal, J. Veitch and Sons for group of

Roses and Maples; Gold Medal, G. Pault and Son for group of Roses; Large Gold Medal, Sir Trevor Lawrence, Bart., for group of Orchids; Silver Flora, W. Paul and Son for cut blooms of Roses; Silver Banksian, Osborn and Sons for group of Plants; Silver Banksian J. Aldous for group of Plants; Bronze Flora, C. Lee and Son for Begonias.

The prevailing cold winds prevented this meeting being very largely attended by exhibitors, nevertheless the collections of plants were sufficiently numerous to occupy one side of the conservatory, and a few were staged in the Council-room. The chief features were the superb group of Orchids from Sir Trevor Lawrence's garden, the Roses from Messrs. Paul of Cheshunt, and the group from Messrs. Veitch of Chelsea.

FLORAL COMMITTEE.

Dr. DENNY in the Chair.

In the conservatory was a grand collection of Orchids from Sir J. Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, which for vigour, floriferousness, and brightness of colour could not be surpassed. The following are some of the most noticeable specimens: Dendrobium Jamesianum on a block had two growths bearing from three to eight large flowers each; Masdevallia Harryana with over three dozen large and extremely brightly coloured flowers; Dendrobium thyrsiflorum bore numerous enormous pendulous spikes; Oncidium sarcodes with a panicle of flowers over a yard in length; Lycaste Skinneri, a handsome specimen such as is seldom seen, with nearly forty large blossoms; Oncidium ampliatum majus had several large panicles bearing an immense number of large pale yellow flowers; Lælia cinnabarina had four racemes of bright orange-coloured flowers; Odontoglossum citrosmum and O. citrosmum roseum were represented by good specimens, one form of the latter had four fine racemes of flowers, the labellums being very deeply tinged with rose; Cattleya Mendellii had two enormous blooms; Cypripedium caudatum, handsome flowers with petals more than 2 feet in length. Odontoglossum crispum and a superb variety aptly named grandiflorum were exhibited in fine condition, also O. Andersonianum and Cattleya Mossiæ with many others in extraordinary good form. Mr. J. C. Spyers, Sir Trevor Lawrence's Orchid grower, most indubitably understands the requirements of the beautiful plants under his charge. The award of a gold medal indicated the Committee's recognition of their great merit.

Messrs. Veitch and Sons, Chelsea, exhibited a large group of Roses in pots, and numerous beautiful Japanese Acers. Among the Roses some of the best varieties presented were Charles Rouillard, Madame Willermoz, Comtesse de Serenye, Vicomte Vigier, Beauty of Waltham, and Fisher Holmes. The acers included several forms of A. polymorphum, notably flavescens and palmatifidum. A gold medal was awarded. Six boxes of cut Roses were exhibited by Mr. W. Paul of Waltham Cross, comprising over 120 good blooms of the best varieties. The following were especially remarkable for their size, substance, and brightness of colour:—Mdlle. Thérese Levet, Capitaine Christy; Red Dragon, a new variety, extremely bright; Queen Eleanor very handsome flowers; Souvenir d'un Ami, André Dunard, Star of Waltham, and a very dark-coloured seedling of great size. A silver Flora medal was awarded. Messrs. Paul and Son, The Old Nurseries, Cheshunt, obtained a gold medal for a large group of handsome Roses in pots, La France, Madame Victor Verdier, and Marquise de Castellane being represented by remarkably handsome well-flowered specimens. Cut blooms of Maréchal Niel were also shown in fine condition. Messrs. Osborn and Son, Fulham, were adjudged a silver Banksian medal for a group of plants comprising Palms, Dracænas, Azaleas, and several good specimens of Anthurium Schertzerianum. Messrs. Charles Lee and Son, Hammersmith, sent two pans of Tuberous Begonias, B. Coltoni and B. Rodwelli, both bearing large and brilliantly coloured flowers. For the latter a bronze medal was awarded. From the Society's gardens came a collection of Primulas and Selaginellas in excellent condition; and Mr. J. Aldous, South Kensington, staged a group of miscellaneous plants, for which a silver Banksian medal was awarded. Messrs. Barr and Sugden had their usual group of Narcissuses and Tulips.

In the Council-room were staged several new plants, some being extremely attractive. Messrs. Veitch and Sons obtained first-class certificates for the following — Lastrea Richardsii multifida, a pretty Fern with pinnate fronds, the pinnæ crested and light green; Amaryllis Lady Bolsover, a handsome variety, flowers large, 7 or 8 inches in diameter, of good form, streaked with scarlet, a broad white band down the centre of each perianth division; and Azalea Rollissonii, a dwarf form with small neatly formed bright salmon-coloured flowers, very distinct and attractive. Other good Azaleas were shown, notably Roi Leopoldi alba and A. hydrangeæflora, the latter resembling the Carmichael hybrids. Mr. J. Cloke, gardener to J. A. Jinne, Esq., Bearley, Liverpool, sent three new pretty Crotons, well coloured but not deemed sufficiently distinct to merit certificates. Mr. W. Bull, Chelsea, several specimens of Maranta Kerchoveana, Sarracenia flava picta, Acacia sphærocephala, and Drosera filiformis; for the latter a cultural commendation was awarded. Mr. J. King, gardener to G. Simpson, Esq., Wray Park, Reigate, obtained a first-class certificate for Coleus George Simpson, a handsome variety with leaves of good form, extremely bright crimson blotched with maroon, and with a neat crenated yellow margin—very distinct and attractive: one of the few new Coleuses which have been considered worthy of certificates. Sir Trevor Lawrence obtained a first-class certificate for Odontoglossum hystrix serratum with large yellow flowers blotched with pale chocolate, petals fringed on the edges—a beautiful Orchid. A cultural commendation was awarded for specimens of Mignonette from Chiswick named Hemsley's Giant White, an excellent form and well grown. Messrs. John Standish and Co., Royal Nurseries, Ascot, were adjudged a first-class certificate for a beautiful seedling Rhododendron named Snowflake as a forced plant, flowers pure white, open 3 or 4 inches in diameter, in large compact heads; also a second-class certificate for Rhododendron Flag of Truce, similar to the other, but bearing smaller flowers. Votes of thanks were accorded to Mr. Hooper, Widcombe Hill, Bath, for a collection of remarkably handsome Pansies; and to Mr. Caudwell for specimens of Cardamine pratensis. Mr. J. Elwes, Preston House, Cirencester, obtained a first-class certificate for Corydalis bracteata, a hardy plant with pale yellow flowers and bright green leaves.

FRUIT COMMITTEE.

JOHN LEE, Esq., in the Chair.

The duties of the Committee were extremely light, for there were only three exhibits. Mr. Ernst Benary, Erfurt, Germany, sent two dishes of Onions named Zittau Giant Yellow, for which a commendation was awarded as a good keeping variety. Mr. G. T. Miles, gardener to Lord Carington, Wycombe Abbey, Bucks, sent bunches of Black Hamburgh Grapes extremely well coloured, and a basket of Stanstead Winter Cabbage Lettuces in excellent condition, a cultural commendation being awarded for both.

SCIENTIFIC COMMITTEE.

Sir J. D. HOOKER, K.C.S.I., in the Chair.

Injury to Cypress.—Some further statements were made as to Mr. Boscawen's Cypress, Mr. MacLachlan adhering to his previously expressed opinion.

Insects Injurious to Larch.—Mr. Elwes showed specimens covered with eggs of a Chermes, and, in addition, myriads of the larva of one of the Tineinous moths, Coleophora laricella, the larva of which mine the leaves, and make cases for themselves out of the cuticle. As the insects are so extremely numerous and cover so large an area, anything like a practical remedy is almost out of the question; but it was suggested by Mr. MacLachlan that setting fire to the long grass might be efficacious.

Tulips. — Mr. Elwes showed specimens of T. Kolpakowskyana and of T. Eichleri, to show the result of one year's cultivation on the size and form of the flowers, the flower after one year's cultivation being, at least, three times the size that it was originally. Conversely Mr. Elwes had succeeded in reducing the size of the Van Thol Tulip to the diameter of two inches or thereabouts. As an inference of these experiments, as well as of the fact that little or no difference was to be seen between Central Asian and Italian Tulips, Mr. Elwes stated that the characters at present in use to distinguish Tulips are of little weight, and that most of the so-called species would eventually be reduced to geographical forms or varieties.

Specimens Exhibited.—In addition to the species above named Mr. Elwes showed T. Didieri, from Savoy; T. saxatilis, or an allied species, from Teheran; Scilla lilio-hyacinthus; Fritillaria olympica, with greenish flowers, from Broussa; F. pallidiflora, from Siberia; F. obliqua, a plant long known in gardens, but not known in a wild state; it has ascending spirally twisted leaves; Kolpakowskya ixiolirioides, a blue flowered plant, with the habit of an Ixiolirion; Cypripedium pubescens, with two flowers; Primula mollis, from Bhotan; Arnebia echioides, which has the property of blooming twice or three times in the year; Streptopus roseus, various species of Muscari, Erythronium grandiflorum and Bomarea Caldasii.

Renanthera coccinea.—Sir J. D. Hooker showed a portion of a panicle of this superb Orchid grown in Lord Fortescue's garden. The specimen was a remarkably fine one.

Dragon's Blood Tree.—Sir J. D. Hooker also showed a drawing by Professor Bayley Balfour, made in Socotra, of a fine arborescent Dracæna, which produces the Dragon's-blood of Socotra. It is the Cinnabar of Dioscorides, Socotra itself being formerly called Dioscorida. The Dragon's-blood is used as a varnish.

The Question of the Phylloxera.—Dr. Masters again brought under the notice of the Committee the restrictive laws regulating the introduction of living plants into certain European countries, as also into Cape Colony and Fiji. The futility of the regulations was pointed out as well as the needless injury inflicted on horticulture. Some discussion ensued, and ultimately it was decided that Dr. Masters should represent the matter to the Council on behalf of the committee, in order that the Society might take action on the matter.

MAY 11, 1880.

ORDINARY GENERAL MEETING.

Col. R. TREVOR CLARKE in the Chair.

Elections.—Miss Attye, Isaac Beeman, G. S. Benham, Mrs. F. Birt, E. Blythe, Mrs. Bullar, Wakefield Christy, Mrs. Compton, C. C. Cotton, Mrs. Davenport, James H. Deakin, Walter Derham, B.A., Miss L. Fawkes, E. Gilbert, Patrick Grant, Mrs. Philip Gurdon, Mrs. Fyfe Jamieson, J. M. Lely, Miss M'Dowall, Miss L. A. M'Dowall, Capt. E. Spencer Meara, R.N., Charles Parbury, George R. Peerless, Mrs. Shaw, Hon. Mrs. Jervoise Smith, Lord Sudeley, Richard A. Todd, J. Walker, Mr. Henry Yeames.

Medals Awarded—Gold Medal, J. Veitch and Sons for group of Azaleas; Silver Banksian, Osborn and Sons for group of Plants; Silver Banksian, W. Rapley for group of Calceolarias; Silver Banksian, W. Cannell for baskets of Pansies; Silver Flora, Wm. Paul and Son for cut blooms of Roses.

This Meeting was not distinguished by any extraordinary display either of plants or fruits, yet the latter comprised some excellent Pine Apples and Strawberries, while the former were sufficiently numerous to make one side of the conservatory bright, and several new plants of unusual interest were exhibited. In the conservatory Messrs. Veitch and Sons' group of Azaleas and Maples occupied a large space, and the rich colours of some of the Azaleas were so agreeably softened by the pleasing light green foliage of the Maples that the effect was extremely satisfactory.

FLORAL COMMITTEE.

Dr. DENNY in the Chair.

The plants submitted to the Committee were in excellent condition, although few in number. Messrs. J. Veitch and Sons, Chelsea, exhibited several new plants, and for the following three, first-class certificate were granted—Anthurium Schertzerianum Rothschildianum, a form that has resulted from crossing the ordinary A. Schertzerianum with the white variety, was raised by Mr.

F. Bergman, gardener to Baron Rothschild at Ferrières, France. The leaves resemble the typical species, but the spathe exhibits a combination of the characters of both, for it is white spotted or dusted over with red, and the spadix is yellow. It is certainly very peculiar, but will not surpass the old form in a decorative point of view. Chionographis japonica, a pretty little plant with a basal rosette of leaves and long scapes of small white flowers. Gloxinia Prince of Wales, a variety of great merit; habit compact and sturdy; flowers erect, very symmetrical in form; colour white, thickly dotted with violet purple. Several other Gloxinias were shown by the same firm, notably Eclatant, of a rich crimson colour; and Ariadne, similar in form to Prince of Wales, but dotted with red. A plant of a dwarf Anthurium was also sent, named A. Schertzerianum pygmæum, about 9 or 10 inches in height, with narrow acute leaves, and narrow brightly coloured spathes. Mr. G. Braid, Winchmore Hill, sent plants of seedling Pelargoniums of the type known as "decorative varieties"—namely, those grown for market. They were all in 48-size pots and in vigorous health; but of the three varieties shown only one—viz., Decorator, was considered sufficiently distinct to merit a first-class certificate. This was of good habit; trusses large; flowers of good form, petals slightly crimped round the margin, white streaked with rose in the centre. The others, Criterion and Distinction, were also good varieties and profusely flowered. Mr. Weatherall of Finchley also exhibited some new Pelargoniums of the same type. First-class certificates were awarded for the following—Surnise, habit compact; truss large; flowers rich scarlet, with a dark blotch on the upper petals: very showy. Clipper, trusses neat; flowers rosy crimson, the upper petals being rather brighter, marked with a dark blotch; and Mr. Gladstone, a fine variety, with rosy salmon flowers, produced in noble trusses. A first-class certificate was awarded for a new Gloxinia from the Society's garden at Chiswick, which was appropriately named the Chiswick White. The plant was in excellent condition in a 24-size pot, and was bearing over two dozen fine flowers and buds. The former were of unusually good form, large and pure white. This appears to be one of the best white varieties yet obtained both in purity of colour and profuseness.

Among the miscellaneous exhibits was a remarkably fine specimen of Odontoglossum odoratum from Mr. W. Sherwin, gardener to M. Sparke, Esq., Charlwood House, Liverpool, and for which a cultural commendation was deservedly awarded. It was bearing over two hundred flowers. Mr. H. Cannell, Swanley, Kent, exhibited cut flowers of the pretty double white Campanula persicifolia, a very useful plant for supplying pure white neatly formed flowers; also specimens of Pelargonium cucullatum flore-pleno, somewhat in the style of the well known Rollisson's Unique; some excellent seedling Mimuluses, and a number of new Primulas of the lilacina type. A vote of thanks was accorded to Mr. Cannell for his collections, and to Mr. R. Dean, Ranelagh Road, Ealing, for collections of hardy flowers, including Wallflowers, very fine; Primulas, Polyanthuses, and the brightly coloured Aubrietia violacea. Messrs. Charles Lee and Son, Hammersmith, sent plants of a new Lobelia named Blue Star, very bright in colour, with a white eye; small Retinosporas, and specimens of the Golden Box. Mr. E. Bayman, gardener to the Hon. Leveson Gower, Holmbury, Dorking, sent flowers of a seedling Primula japonica that were nearly white, being only faintly tinged with purple in the centre.

In the conservatory Messrs. Veitch staged a handsome group of Azaleas and Japanese Maples, the former including a large number of exceptionally good varieties. Some of the most noteworthy were the following:—Oswald de Kerchove, flowering most profusely, colour a pale crimson; Triomphe de Wondelghem, a fine double salmon scarlet; Roi d'Hollande, very bright red, good flower; Flambeau, small flower, but of an intensely rich crimson colour; Comtesse de Flandre, La Rosea, and Belle de Roses are excellent pink varieties with large flowers, white; Mdlle. Marie Lefebvre and Rosa Bonheur are fine white forms. About seventy pyramidal specimens were exhibited, all very well flowered. A gold medal was awarded for the group. Messrs. Wm. Paul and Son, Waltham Cross, were awarded a silver Flora medal for six boxes of excellent cut Roses, comprising about 130 blooms, all very fresh and bright. Baronne de Rothschild and Duchess of Bedford were admirably represented. Mr. H. Cannell was adjudged a silver Banksian medal for basket of Pansies, including Chieftain, Vestal, Magpie, Yellow

Boy, and Qeeen Victoria, varieties of great beauty and shown in fine condition. A silver Banksian medal was also awarded to Messrs. Osborn and Sons, Fulham, for a group of stove and greenhouse plants, pans of the intensely deep blue Gentiana acaulis in the front row being especially noticeable. A similar medal was accorded to Mr. Rapley, gardener to J. Brand, Esq., Bedford Hill House, Balham, for a group of Calceolarias, well grown, with large flowers, some being very finely coloured. Messrs. Smith and Larke, florists, Kensington, sent bouquets and ornamental baskets of Ferns; and a large group of plants was sent from the Society's garden at Chiswick, comprising some excellent Gloxinias, a collection of species of Pelargonium, and young plants of Abutilon Sellowianum marmoratum in a highly creditable condition as regards vigour and colour.

FRUIT COMMITTEE.

HENRY WEBB, Esq., in the Chair.

A dish of very fine Strawberries was received from Lord Wimborne, Canford Manor, Dorset. They were the President variety, and were from plants which Mr. Hinds, the gardener, stated were wintered without any glass protection and potted the second week in August. Mr. Hinds also sent a dish of William I. Pea grown in 9-inch pots in a cool orchard house, also two dishes of excellent Mushrooms grown from a bed in the open in the ridge form and covered with 9 inches of litter. There was also a fine dish of Veitch's Improved Ashleaf Potatoes. All these objects showed superior cultivation, and were awarded a cultural commendation. Mr. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, sent seven Queen Pines of excellent flavour which were grown in small pots in a very limited space. They were considered well worthy of a cultural commendation, which was awarded to them. Mr. John Beach Preston, Igtham, Sevenoaks, sent a dish of seedling Tomatoes, which were identified as the same as Hathaway's Excelsior. A letter of thanks was awarded. Mr. Samuel Ledsham of Green Lane, Boughton, Chester, sent several heads of a late Broccoli, which was greatly admired, and it was suggested that it should be sent again to the next Meeting, when some other varieties will be exhibited along with it for comparison. Mr. Maher, gardener to C. Allhusen, Esq., Stoke Court, Slough, sent dishes of Hunt's Tawny Nectarine and Crawford's Early Peach, also a dish of President Strawberry. They were considered very good, and received a cultural commendation. Mr. Miller, gardener, Clumber, Notts, sent fruit of Passe Colmar, Ne Plus Meuris, and Winter Nelis Pears, and Vicomtesse Hericart de Thury Strawberry, to which a letter of thanks was awarded. A very interesting collection of European fruits grown in South Australia was exhibited by Mr. George Shelton of Commercial Street, Mount Gambier. It consisted of a dish of Apples, Uvedale's St. Germain Pears, Sultana or Jordan Almond, yellow Danvers Onion, and two varieties of Potatoes. A special letter of thanks was awarded.

SCIENTIFIC COMMITTEE.

ARTHUR GROTE, Esq., in the Chair.

The Phylloxera Question.—Dr. Masters brought up a report for presentation to the Council, detailing the steps taken by various foreign and Continental Governments, with a view to prevent the ingress and spread of the Phylloxera, and pointing out the unnecessary and even absurd restrictions imposed on the transit of living plants by some Governments. The report was adopted, and ordered to be laid before the Council.

The Winter and the Plants.—Dr. Masters laid on the table copies of the circulars drawn up with a view of eliciting information as to the effects of the late winter on various plants. These circulars can be had on application to the Secretary. Mr. G. F. Wilson suggested that information as to "unexpected survivals" should also be solicited. It was mentioned that this information could be inserted in the "remarks column." Dr. Gilbert alluded to the effect of the wet season of 1879 on the Wheat crops. In general terms the yield at Rothamsted was not half an average, though the straw was not correspondingly deficient, at least where manure was applied. An examination of the drain-water collected for the purpose showed that a large proportion of the nitrogen supplied in the manure was washed out of the soil by the rainfall, as a consequence of which the analysis of the grain showed but a small quantity of nitrogen in proportion to the quantity applied in the manure.

Unhealthy Condition of Plants.—A letter was read from Mr. Tonks, detailing the ill-success which had befallen him in cultivating various plants where formerly he was very successful. The letter conveyed no hint as to the cause of the misfortune, which probably could only be discovered on the spot.

Parasite on Sempervivum.—Mr. W. G. Smith alluded to a parasitic fungus, Endophyllum sempervivi—a rare plant, but which when introduced into the greenhouse had proved very destructive to species of Sempervivum.

Gall on Eucalyptus.—Dr. Masters showed a remarkable fusiform gall on a species of Eucalyptus, and which had been sent to him by Baron von Mueller. It was referred to Mr. MacLachlan for report.

Plants Exhibited.—Rev. H. Harpur-Crewe showed Tulipa Orphanidesi, Fritillaria Ehrharti from Syra with a small bell-shaped purplish flower edged with green; various species of Muscari, as yet unnamed; and a white variety of Scilla italica. Messrs. Veitch showed the elegant Chionographis japonica, introduced from Japan by Mr. Maries. It is a perennial, of tufted habit, with oblong-obovate, acute, wavy-margined, glabrous leaves, and an erect flower-stalk 12—18 inches high, with scattered lanceolate bracts, and terminating in a linear spike of sessile white flowers, each flower with six linear narrow white segments. Anthurium Scherzerianum pygmæum, also from Messrs. Veitch, was shown. Its very narrow leaves and spathe, and its spadix stalked above the spathe, were points, irrespective of size, in which it differed from the ordinary form, and which secured for it the award of a Botanical Certificate. Another Anthurium was shown, a cross between the ordinary A. Scherzerianum and the white variety; in this case the spathe was spotted with small red spots on a white ground. A curiously twisted variety of Cryptomeria japonica was also shown; the variety is figured in Siebold and Zuccarini's *Flora Japonica*.

May 17, 1880.

POPULAR FLOWER SHOW.

Medals Awarded. — Whit-Monday Show, May 17th. — Silver Banksian, J. Veitch and Sons for group of Azaleas; Silver Banksian, General Horticultural Company, (J. Wills,) Limited, for group of Plants; Bronze Banksian, Osborn and Sons for group of Plants; Bronze Banksian, H. Cannell for group of Plants.

With a liberality that is unquestionably highly appreciated the Council of the Society gave admittance to the Gardens at South Kensington on Whit-Monday at the nominal price of 2*d.* each person, and provided a flower show into the bargain. The weather having been of the most favourable character thousands of sight-seers visited the Gardens, and crowded round the tables containing the groups, criticising and admiring the many choice plants and splendid examples of culture provided by the nurserymen and growers of plants for market who shared in producing the display. The prizes were exclusively provided for the market growers and decorative florists, and included four silver cups, but the classes were few in number and the competition was not brisk, yet the collections reached nearly the entire length of the eastern arcade, and as arranged on tables could be seen to as great advantage as the dense crowds permitted. The silver cup, value eight guineas, for a group of decorative plants arranged for effect, was well won by Mr. Aldous, florist, Gloucester Road, South Kensington. It was a free and informally arranged group, the taller plants consisting of Palms and Acer Negundo variegata; the smaller and what may be termed the undergrowth, comprising Liliums umbellatum and candidum, Pelargoniums, Spiræas, Calceolarias, Ericas, Ferns, Marguerites with a few prominent examples of Saxifraga pyramidalis and Richardias, the whole being fringed with Isolepis gracilis and Selaginellas.

In the class for a group of not less than fifty show Pelargoniums Mr. W. Brown, Hendon, was in the premier position with a magnificent collection of nearly a hundred plants, most of which were in 5-inch pots, only a few being in 32's. The plants averaged 18 inches in diameter and about the same in height. They were dense masses of fine flowers, with foliage of remarkable health and vigour that almost covered the pots, not a leaf apparently having been lost since the cuttings were inserted. The varieties were not numerous, and were principally of the "decorative" type. The best lights were Duchess of Edinburgh; Starlight (Page), a new variety with a dense blotch on the upper petals; and Morning Star (Brown), also new and very beautiful, the white petals having only faint pink blotches. The darker varieties were Duchesse de Morny, pink; Emilie Everard, scarlet; Fascinator, maroon and crimson; Trophy, reddish crimson, new and good; Mabel, velvety maroon, smooth and fine; Sentinel, rosy purple; Rival, red, very effective; George Beckwith, pale scarlet, large flowers and trusses; George Strudwick, and some unnamed seedlings. Messrs. J. and J. Hayes of Edmonton were an excellent second with dwarf sturdy floriferous examples. These exhibitors who contributed so powerfully to the success of the Exhibition, had the stage to themselves for zonals with fifty plants of Vesuvius in 5-inch pots, each plant having ten to twelve open trusses—a brilliant bank. They had also the first prize for Fuchsias with fifty plants of remarkable quality, vigorous pyramids and bushes 18 inches by 2 feet high clothed with dark foliage and laden with splendid flowers. Only a few varieties were included. The best lights for market and decorative purposes being Lady Heytesbury and Starlight; the best darks, Improvement and Roderic Dhu. Wave of Life and Sedan were also good; and the double variety Avalance was very fine. Messrs. Hayes also won the special prize given by the proprietors of Clay's fertiliser with a mixed collection, the plants showing the excellent effects of this manure, which is largely employed by market growers.

In addition to the competitive groups, Mr. Howard of Southgate had an extra prize for a collection of the new Golden Marguerite Chrysanthemum frutescens Etoile d'Or, which has been certificated this spring There are two varieties of this popular flower, the one grown by Mr. Howard being the "right one," and the "run" on it is now great. Messrs. Veitch and Sons had a silver

Banksian medal for a group of large Azaleas, which were evidently a treat to the visitors; the General Horticultural Company having a similar award for a rich and varied assortment of ornamental-foliaged plants, Ferns, and Gloxinias. Messrs. Osborn a bronze Banksian medal for a group of hardy plants, in which Saxifraga Wallacei, the finest of the Mossy Saxifrages, was well shown; and Mr. Cannell also had a bronze medal for a collection including dwarf and remarkably fine examples of Primula amœna grandiflora, and P. amœna lilacina magnifica, the finest varieties we have seen of this valuable Primula; and cut flowers arranged in bold bouquet-like mounds of large Gloxinias and richly spotted Mimuluses, the gorgeous colours of the latter appearing to astonish the visitors who crowded round this collection. Mr. Wooler of Sadberge Park, Darlington, was adjudged an extra prize for hose-in-hose Oxlips and Polyanthuses, which also found a host of admirers.

Never was a show more greatly admired than this, and the crowds enjoyed in the most commendable manner the great treat afforded them. The Show was well managed by Mr. Barron, and Mr. Dick and other officials of the Society exerted themselves to render the affair what it decidedly proved to be—a great success.

MAY 25TH, 1880.

ORDINARY GENERAL MEETING.

WILLIAM HAUGHTON, Esq., in the Chair.

Elections.—William Phipps Boileau, Ashley Francis Brereton, George Henry Brooks, William Brown, Clifford W. Chaplin, Mrs. Clowser, Thomas Fletcher, Miss May Forsyth, Edmund F. B. Fuller, Countess Howe, W. Guy C. Kirkwood, J. L. Matthews, Mrs. Montagu M'Murdo, Capt. W. B. M'Taggart, Lieut.-Gen. Sir H. W. Norman, Christopher Pond, Mrs. Pond, Miss Pond, John Scott, Mrs. Scott, William S. Staff, Edward H. Woodall.

Medals Awarded.—Silver Medal, G. N. Wyatt for Odontoglossum

Vexillarium; Large Gold Banksian, Charles Turner for group of Pot Roses; Gold Medal, B. S. Williams for group of Plants; Gold Medal, General Horticultural Company, (J. Wills) Limited, for group of Plants; Silver Gilt Flora, J. R. Bird, gardener to J. A. Caston, Esq., for group of Calceolarias and Mignonette; Silver Banksian, W. Cutbush and Son for group of Plants; Silver Banksian, J. Aldous for group of Plants; Bronze Medal, W. Miles for group of Mignonette and Pelargoniums.

One of the most extensive and beautiful shows held during the present year was that of the above date, when a very large number of plants were staged both in the Council-room and the western arcade beyond the conservatory. Among the handsome groups exhibited by the nurserymen the chief attractions were the grand Roses from Mr. C. Turner of Slough, which as arranged along one side of the arcade contributed a display of extraordinary merit. Many other collections of unusually fine plants were contributed; the new plants in the Council-room also attracted considerable attention from the numerous visitors. All the groups in the arcade remained on view until after the conversazione.

FLORAL COMMITTEE.

Dr. Denny in the Chair.

In the Council-room numerous collections of plants were staged, especially noticeable being the group of new plants and Gloxinias from Messrs. Veitch and Sons, Chelsea. Mr. B. S. Williams, Upper Holloway, contributed a collection of hybrid Nepenthes, distinct and good; also several new plants. A vote of thanks was accorded to the General Horticultural Company for a group of new Gloxinias, one of which, rich purple with a white throat, was especially noticeable. G. Nevile Wyatt, Esq., Lake House, Cheltenham (gardener, Mr. Simcoe) sent a handsome specimen of Odontoglossum vexillarium, bearing fourteen long racemes of large deeply coloured flowers, over one hundred of which were fully expanded. The great merit of this fine specimen was recognised by the Committee, who recommend the award of a silver medal. A raceme of Odontoglossum Alexandræ bearing extremely large flowers was also shown, and a vote of thanks was accorded. Mr. Goodacre, The Gardens, Elvaston Castle, Derby, had some small Stephanotises in thumb pots, bearing from four to six trusses of flowers. The shoots were trained over an arched stick, and the value of such plants for decorative purposes can scarcely be overestimated. A vote of thanks signified the Committee's recognition of their merit. Mr. Braid of Winchmore Hill exhibited a group of decorative Pelargoniums. Messrs. Laing and Co., Forest Hill, sent a collection of dwarf compact Calceolarias and handsome seedling Begonias. Mr. Yeary, gardener to the Earl of Portsmouth, Eggesford, Devon, staged a variety of Betula alba with "golden" variegated foliage. Messrs. J. Garaway and Co., Durdham Down Nurseries, Bristol, sent a Horse Chestnut with yellow and green variegated leaves. Messrs. Saltmarsh and Son, Chelmsford, had a group of seedling Begonias, and Mr. Henry Hooper of Bath exhibited a collection of Pansy blooms; and a vote of thanks was accorded to Mr. Bergman, gardener to Baron de Rothschild, Ferrières, France, for a fruit of Encephalartos Altensteinii, which was about 2 feet long and 1 foot in diameter, cylindrical, and apparently full of seeds. Messrs. Carter and Co., High Holborn, sent plants of Mimulus Ruby with very large flowers, and a collection of Neriums was brought from the Society's gardens at Chiswick, with a number of cuttings struck in silver sand and in Cannell's sea sand, there being but little difference perceptible between the two batches, but those in the sea sand appeared in some instances slightly more vigorous.

First-class certificates were awarded to the following exhibitors for the undermentioned plants—Messrs. Veitch and Sons, for Clove Carnation Sir Archibald Grant, a variety with neat flowers of rich deep maroon colour; and Erigeron pulchellus, a pretty little Composite with long narrow leaves and orange-coloured capitula, and for Lastræa Maximowiczii, Trichomanes parvulum, and Yucca filamentosa aurea elegantissima; Mr. W. Bull, Chelsea, for Cereus C. M. Hovey, a variety with very large rich purplish-crimson flowers; Mr. B. S. Williams, for Nepenthes atro-sanguinea, a hybrid with pitchers of moderate size, elegant form, and richly coloured; Mr. J. Braid, Winchmore Hill, for a decorative Pelargonium named Defiance, with large scarlet pink-shaped blooms borne in good compact trusses; Messrs. Laing and Co., for a white Begonia named Mrs. Laing; Mr. Brown of Hendon for Pelargonium Attraction, a variety with neat flowers of an unusually rich crimson-scarlet hue in trusses of great size; Mr. W. Miles, West Brighton, for a new Zonal Pelargonium named West Brighton Gem, which is dwarf and compact in habit, with fine trusses of bright scarlet flowers somewhat in the way of Vesuvius.

Taking the groups in the order they were arranged in the western arcade, the first to be noticed was the group from Mr. B. S. Williams, which was particularly interesting from the large number of new and choice plants it contained. Fine-foliage plants, such as Crotons, Dracænas, Ferns, and Palms, were well represented, Orchids, Amaryllises, and Anthuriums contributing a very bright effect. The beautiful Dendrobium Parishii on the stump of a Tree Fern was bearing a profusion of its purplish flowers, D. tortile also being shown in fine condition with its peculiar scoop-shaped lip and twisted sepals and petals. Aërides Fieldingii had three fine spikes of flowers, and several others were also noticeable. The pretty Eurycles Cunninghami had two umbellate scapes of neat white flowers, in the centre of each being a small yellowish tube. A pan of insectivorous plants was exhibited, including Droseras Sarracenias, Darlingtonias, and Cephalotus in excellent health; while Amaryllises, and such handsome Crotons as Williamsi, Disraeli, Rex, and Evansianus were uncommonly fine. Microlepia hirta cristata was well represented with a number of Dracænas, &c. A gold medal was awarded for this fine group. The General Horticultural Company also secured a gold medal for a large and extremely elegant group arranged in a light pleasing style. The background was composed of handsome Dracænas, Crotons, and Palms, with rows in front of Gloxinias, and Maidenhair Ferns intermixed. About sixty plants of Gloxinias were exhibited, nearly all distinct, and including some remarkably fine varieties in colour, size of flowers, and substance.

In the centre of the group was a good specimen of Scutellaria Mocciniana very well flowered.

A very large bank of Roses was exhibited by Mr. Charles Turner, Slough, including about fifty specimens. They were all in superb condition. The giant of the group was the central huge example of Charles Lawson, 6 or 7 feet high and the same in diameter, extremely well flowered. The other most noticeable plants were Edouard Morren, grand; John Stuart Mill, extremely bright; Duke of Edinburgh, rich colour; Celine Forestier, profusely flowered; Paul Verdier, very fine; Juno, bearing a great number of flowers; and Camille Bernardin, fine flowers and good colour. For this magnificent collection of Roses a large gold Banksian medal was deservedly awarded. Messrs. Wm. Cutbush and Son of Highgate contributed an elegant group of plants, in which two very fine specimens of Statice Holfordi were especially noticeable for the rich colour and profusion of the flowers. Two healthy examples of the handsome Araucaria excelsa glauca were also conspicuous. Small Ferns, Ericas, Coleuses, and Caladiums formed the margin. A silver Banksian medal was accorded by the Committee. Mr. Wm. Miles, West Brighton Nursery, was adjudged a bronze Banksian medal for a group of his Hybrid Spiral Mignonette in excellent condition, very vigorous and compact, with long spikes of extremely fragrant flowers. Examples of the new Zonal Pelargonium named West Brighton Gem, referred to above, were also shown. A silver Banksian medal was accorded to Mr. Aldous, South Kensington, for a pretty group of miscellaneous plants; and Mr. Prewett, nurseryman, Hammersmith, W., sent three boxes of very large and handsome Maréchal Niel Roses, for which a vote of thanks was accorded.

The only amateur's group of plants was the beautiful collection of Calceolarias and Mignonette from Mr. J. R. Bird, gardener to J. G. Causton, Esq., Lodgemore, Alleyn Park, West Dulwich, for which a silver-gilt Banksian medal was deservedly awarded. The Calceolarias were uncommonly excellent both in habit, size, form, and colours of the flowers, and general vigorous healthy condition. The Mignonette was grown in 24-size pots and trained as standards about 3 feet high, with a conical head covered with long spikes of flowers. The plants were fifteen months old, and evinced careful attention to their requirements. The last group along the arcade was one from the Society's garden, containing a number of Pelargoniums, handsome Saxifrages, Gloxinias, Ferns, &c., well grown and tastefully arranged.

FRUIT COMMITTEE.

HENRY WEBB, Esq., in the Chair.

Mr. S. A. Woods, gardener to F. J. S. Foljambe, Esq., Osberton Hall, Worksop, sent a seedling Melon called "Luscious and Melting," but it was too ripe to enable the Committee to form an opinion on its merits. A red-fleshed Melon was sent by Mr. Gilbert of Burghley Gardens, Stamford, called Excelsior, but it was not of sufficient merit to gain a certificate. Mr. McIndoe, The Gardens, Hutton Hall, Guisborough, sent a seedling Melon called Marcellus; it is a white very firm-fleshed variety, but of very little merit. Mr. Miller, The Gardens, Clumber, sent a dish of Dr. Hogg Strawberry, and a letter of thanks was awarded. Mr. John Simms, gardener to W. B. Eastwood, Esq., Kingswood, Englefield Green, sent Strawberry President, twenty-four fruits weighing 2 lbs. A cultural commendation was awarded. Mr. F. H. Froude, gardener to C. G. Lockhart, Esq., The Elms, St. Albans, sent a dish of Mushrooms grown in a disused cattle shed without any artificial heat. A letter of thanks was awarded. Mr. Walter Child, gardener, Croome Court, Worcester, sent two Cucumbers, the result of a cross between Duke of Edinburgh and Tender and True. It was not considered superior to others in cultivation. Mr. J. Ledsham, Green Lane, Chester, again exhibited his Broccoli, but as there were no others to compare with it no decision was come to.

SCIENTIFIC COMMITTEE.

SIR J. D. HOOKER, K.C.S.I., in the Chair.

Gall on Eucalyptus.—Mr. MacLachlan reported that the spindle-shaped gall sent by Baron Von Mueller, was probably the work of a cynips, which had perforated the young flower-buds. Some of the galls contained a larva of a dipterous insect, itself attacked by a parasitic hymenopterous insect.

Colchicum as a Cattle Poison.—Dr. Masters showed specimens of Colchicum from a field in Lincolnshire, where cattle had died in consequence, it was believed, of eating the foliage of a plant recognised as Colchicum autumnale.

Dionœa.—Messrs. Veitch showed a specimen with a double lamina to the leaf.

Cytisus Adami.—Sir Joseph Hooker showed a specimen, showing the intermediate C. Adami and one of the parent forms, C. purpureus, growing on the same shoot.

Tulip.—Col. Trevor Clarke showed a large flower of a Tulip originally grown by Mr. Jas. Carter, to whom it had been given by Mr. Strangways.

Puccinia Violarum.—Mr. MacLachlan exhibited leaves of the Violet affected with this fungus in a young state.

CONVERSAZIONE.

THE CONVERSAZIONE OF THE ROYAL HORTICULTURAL SOCIETY, held in the Gardens at South Kensington on Wednesday evening of May 26th was highly successful and unusually brilliant. Numerous attractions were provided, and the weather proving favourable induced a large company of visitors to assemble. In the western arcade the numerous handsome groups of plants from Mr. B. S. Williams, Upper Holloway, The General Horticultural Company, Messrs. Cutbush and Son, Highgate, and Messrs. Veitch and Son, Chelsea, were greatly admired, especially that from the latter firm, which was composed of Japanese Maples and Gloxinias, with large clusters of Anthurium Schertzerianum that produced a very brilliant effect. Mr. C. Turner's Roses also constituted a great attraction, the rich colours of the different varieties appearing to excellent advantage under the electric light. In the eastern arcade the members of the Quekett Microscopical Club kindly attended with their microscopes and a number of interesting objects. An excellent selection of vocal and instrumental music was performed in the conservatory, and the garden was brightly illuminated with four of Messrs. Siemens Brothers' large electric lamps, and coloured fires were also judiciously employed at intervals. In the east crush room of the Royal Albert Hall there was an exhibition of statues, &c., showing the effects of "Balmain's Luminous Paint," which attracted considerable attention.

JUNE 8, 1880.

ORDINARY GENERAL MEETING.

Sir CHARLES STRICKLAND, Bart., in the Chair.

Elections. — Thomas Ayres, Mrs. Begley, Richard Blackwood, William Blake, Mrs. Bourne, Capt. Cecil, H. Bunbury, R. Henn Collins, Mrs. Alfred Illingworth, Mrs. Laura Kelly, Mrs. Lely, Auguste Leon, Mrs. Lucena, George A. Macmillan, Miss Grant Morris, Miss E. J. Read, William Roebuck, John N. Rogers, Mrs. Sendall, Lady Maria Spearman, Robert Whyte.

Medals Awarded.—Gold Medal, Sir Trevor Lawrence, Bart., M.P., for specimen of Cattleya gigas; Gold Medal, James Carter and Co. for a collection of Coleus; Silver Banksian, W. Cutbush and Son for group of Plants; Silver Banksian, W. Rapley (gardener to J. Hudson, Esq.) for group of Plants; Gold Medal, W. Bull for group of New and Rare Plants; Silver Banksian, H. Boller for group of Miniature Succulents; Silver Flora, J. James (gardener to Mrs. Watson) for group of Calceolarias; Gold Medal, General Horticultural Company, (J. Wills), Limited, for group of Plants; Silver Gilt Banksian, H. Lane and Son for group of Pyrimidal Ivies; Silver Flora, B. S. Williams for group of Plants; Bronze Flora, F. and A. Smith for group of Pelargoniums; Silver Banksian, Mrs. Pearson for group of Pelargoniums; Silver Gilt Flora, J. Aldous for new designs in Table Decorations &c; Silver Flora, Kelway and Son for a collection of Pyrethrums (cut blooms); Silver Gilt Flora, Foster and Pearson for span-roofed Greenhouse, Plant Pits, Patent Valves, &c.; Silver Banksian, T. Clarke for Patent Excelsior Lawn Mower; Silver Banksian, Meadow Foundry Company, Limited, for new Throttle Valve; Silver Flora, J. C. Fox for Rustic Summer Houses.

JUNE 8th, 9th, 10th, and 11th.

GREAT SUMMER SHOW.

Although the Show was held nearly a fortnight later than the principal event of last year, and consequently the magnificent Roses that constituted the chief feature of that Exhibition were absent, yet a show of great extent, richness, and variety was arranged in the great marquee, and the large tent 500 feet in length which led to it. Besides the Roses, the season for which was too late (yet Mr. George Paul exhibited well), one missed the telling masses of Clematises and the superb collection of choice plants of Messrs. Veitch, and some Azaleas, yet the "effect groups" were more numerous than last year; the stove and greenhouse plants were better; Orchids more largely represented and rich; Tuberous Begonias finer—indeed magnificent; Calceolarias better, and Ferns were fully equal to those previously exhibited. Fruit was also exhibited in much larger quantity and of superior quality, and vegetables were excellent. Thus the Show on the whole was an admirable one, and clearly proved that the "old Society" enjoys the confidence of the leading cultivators; and the Council may well have been satisfied with the response to their efforts to produce a display as large and varied as possible, and to make provision for the greatest number of those interested in horticulture to visit it. The Exhibition was well arranged, and reflected credit on all who shared in its management. The attendance on the opening day was large and distinguished, notwithstanding that heavy rain occurred about the time of its opening, but the day was afterwards fine. An exhibition of this nature not only gives much pleasure, but is highly instructive to those identified with or interested in horticultural pursuits.

ORCHIDS.—These were staged in considerable numbers, and many of them were of highquality. They constituted an important feature of the Exhibition, and attracted crowds of admirers. In the nurserymen's class for ten Orchids, distinct, Mr. B. S. Williams, Holloway, was placed in the foremost position with a splendid group, consisting of Cattleya Mossiæ superba, with twenty-five flowers; C. Warneri, with twelve grand blooms; Odontoglossum vexillarium and O. Alexandræ, fine; Masdevallias Harryana cærulescens and Veitchiana; Cypripediums barbatum, superbum, and niveum, fine masses; Orchis foliosa, with nearly thirty spikes; and a huge dazzling potful of Epidendrum vitellinum majus. Messrs. T. Jackson and Son, Kingston, Surrey, were placed second. In this group Dendrobium thyrsiflorum had thirteen fine racemes; Masdevallia Harryana, very rich; Cattleya Warneri, a grand dark variety; a capital example of Odontoglossum vexillarium, Aërides Dayanum, Saccolabium præmorsum, Calanthe veratrifolia, Cypripedium barbatum, Epidendrum vitellinum-majus, and Oncidium selligerum, all attractive. Mr. Henry James, Castle Nursery, Lower Norwood, was placed third with smaller examples.

In the open class for fifteen Orchids Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, had the chief position with a beautiful group, the flowers very fine, fresh, and well coloured. Dendrobium thyrsiflorum has twelve grand racemes, and very conspicuous is a towering and well-flowered specimen of D. Dalhousianum; Cypripedium caudatum roseum has remarkably fine flowers; a good C. villosum; Odontoglossum vexillarium, O. roezlii album (the latter with twelve flowers) very chaste, O. crispum; Aërides Fieldingii, Lælia cinnabarina, Masdevallia Harryana, Orchis foliosa, Dendrobium Bensonæ, a good plant of Cattleya Warneri, and Epipendrum vitellinum majus complete the group. Mr. Henry James was a good second, his collection containing a fine mass of Cattleya Mossiæ, Vanda suavis with fine flowers, Dendrobium suavissimum in excellent condition and extremely bright, Epidendrum prismatocarpum, Anguloa Clowesi, and some others the same as those above enumerated. Mr. Rutland, gardener to the Duke of Richmond, Goodwood, was placed third with a neat group containing some good plants, notably of Brassia caudata, Vanda suavis, Lælia purpurata (very rich), a large piece of Oncidium sphacelatum, Odontoglossum vexillarium, three good spikes from one growth with nineteen fine flowers; Dendrobium densiflorum, D. nobile, and a few smaller examples.

In the amateurs' class for ten Orchids the first position was gained by Mr. Reeves, gardener to C. Hart, Esq., Beaufort House, Leyland Road, Lee, with Masdevallia Harryana var. Bull's Blood, very fine; M. Veitchiana, grand flowers; Odontoglossum cirrhosum, O. Halli, O. vexillarium, O. Alexandræ, O. pescatorei, Epipendrum vitellinum majus, and Cypripedium niveum. Mr. Reeves is evidently an excellent grower, the plant being healthy but not large, and all the flowers fine. Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, was second, his noteworthy plant being a fine specimen of Aërides Fieldingii, with half a dozen fine branched spikes and very beautiful.

For a group of Odontoglossum Mr. W. Bull, Chelsea, obtained the premier award with an extremely attractive and tastefully arranged collection. A large number of species and varieties were represented, all in first-rate condition, and among them the most noticeable were O. vexillarium, O. Phalænopsis, O. Alexandræ, O. cordatum, and O. cristatellum. These were arranged with small plants of Adiantum cuneatum and gracillimum, the general appearance being most elegant and pleasing. The second prize in this class was won by Mr. Heims, gardener to F. A. Fillbrick, Esq., 26, Avenue Road, Regent's Park, with a group of small but fresh plants, and very attractive.

STOVE AND GREENHOUSE PLANTS.—These were well represented, and the specimens generally were uncommonly fresh and vigorous, and the colours bright. Some of the specimens were also bearing a profusion of flowers, although the majority of the Azaleas were somewhat deficient in number of flowers. The most important class was that for twelve distinct species and varieties, and in this there were four exhibitors, all staging collections of healthy specimens. The chief honours were obtained by Mr. Tudgey, gardener to J. P. G. Williams, Esq., Henwick Grange, Worcester, who sent very even and handsome specimens, among which the following were especially noticeable—Pimelea decussata, over four feet in diameter, vigorous and profusely flowered; Dracophyllum gracile, similar in size, a handsome symmetrical plant; Erica ventricosa magnifica in fine condition, the flowers not being, however, very numerous but of rich colour; Erica Parmentieriana rosea, an enormous specimen over 5 feet in diameter, very healthy but poorly flowered; Erica elegans was very even and neatly trained; and Clerodendron Balfourianum, well flowered and healthy. Messrs. J. Jackson and Son, Kingston-on-Thames, followed with a very creditable collection, well grown and fairly well flowered. The beautiful and rarely seen Statice Butcherii was well represented by a neat plant, the rich purple colour of the flower being very conspicuous. Boronia pinnata was also noteworthy. Messrs. J. Peed and Son, Roupell Park Nurseries, Norwood Road, were awarded the third prize for a collection that contained several plants in first-rate form as regards the number and quality of the flowers. A large specimen of Anthurium Schertzerianum with unusually fine richly coloured spathes was very attractive, and formed the chief feature in the group; a moderate sized plant of Azalea Jackson's Crimson was also notable for the bright hue of the blooms.

In the nurserymen's class for eight specimens the chief position was occupied by Messrs. B. Peed and Son, Norbury Nurseries, Lower Streatham, among whose plants handsome specimens of Erica Cavendishiana Dracophyllum gracile, and Allamanda grandiflora were deserving of notice. The Dracophyllum in particular was in splendid condition, nearly 6 feet in diameter, and bearing an immense number of flowers. Messrs. Jackson and Son were placed second with neat specimens that exhibit very careful training. In the corresponding class devoted to amateurs' productions Mr. Tudgey was again in the foremost position with smaller specimens than those in his other collections, but in excellent form. The beautiful Dipladenia hybrida had flowers of great size and rich colours, although comparatively few in numbers; and of the other specimens the best was the pretty semi-double white Azalea Flag of Truce. The second award of merit was obtained by Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, whose plants approached those of Mr. Tudgey very closely in quality. Azalea Iveryana was especially fine, Erica magnifica and Clerodendron Balfourianum being also symmetrical and well flowered. The third prize was accorded to Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Sussex. Most of the plants in this collection were remarkable for their freshness and vigour, Statice profusa being uncommonly attractive. There were four entries.

AZALEAS.—Three classes were devoted to Azaleas, but very few specimens were exhibited. Mr. Charles Turner, The Royal Nurseries, Slough, the only exhibitor of fifteen specimens in 12-inch pots, was awarded the chief prize for his customary neat and well-flowered plants, which were in admirable condition. The finest specimen was one of the handsome variety Duc de Nassau, in which the flowers were of extraordinary size, rich colour, and very abundant. Mr. Child had the only collection in the amateurs' class.

ERICAS.—Several very fine collections of these plants were exhibited. Mr. Tudgey had the best eight specimens, all very neat and healthy, but none calling for special comment except Erica Cavendishiana, profusely flowered and of good colour. Messrs. Jackson and Son were second with a neat collection; and Messrs. B. Peed and Son were accorded the third prize for a collection of moderate quality, a plant of Erica ventricosa magnifica being the most remarkable.

PELARGONIUMS.—Although these were not very numerous the specimens exhibited were of great merit, and constituted a most attractive group on one side of the marquee. The two classes devoted to nine Show and Fancy varieties respectively were both open, but the competitors were not so numerous as might have been expected. For nine Show varieties in pots not exceeding 8 inches in diameter, Mr. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, held the premier position, his specimens being characterised by the usual freshness. The blooms were large and the colour remarkably fine. Hermit was very attractive;

Prince Leopold uncommonly bright; Claribel, chaste, and bearing a large number of flowers; Rob Roy, excellent; Princess of Denmark and Hebe, also fine. Mr. C. Turner followed with a smaller specimen but equally fresh and bright, the handsome variety Prince Leopold being still better represented than in Mr. Little's group, Messrs. J. Peed and Son taking the third place with small plants. In the corresponding class for Fancy varieties Mr. Little was again first with the only collection that was staged. These plants were in most vigorous health and well flowered, Ellen Beck and Lucy being unusually fine.

ROSES.—Tho only exhibitors of Roses in pots from nurserymen were Messrs. Paul and Son of Cheshunt, who had two handsome collections, which formed a large semicircular group at the east end of the marquee. The nine large specimens were in fine condition, the flowers being generally of good substance and the colours bright. The most noteworty were Marie Rady, excellent colour; Anna Alexieff, well flowered; and Madame Thérèse Levet, flowers of good form. The central specimen of Céline Forestier was rather bare at the lower part. The collection of twenty small plants was extremely good, a fine selection of varieties being admirably represented. The flowers were large, of bright colour, and abundant. Only two collections of six plants in pots from amateurs were exhibited, and of these that from G. P. Hawtrey, Esq., of Aldin House, Slough, was accorded the first prize. They were in excellent condition considering the unfavourable season, the foliage being extremely vigorous, and the blooms of fine size and substance. The best varieties represented were Edouard Morren, Hippolyte Jamain, Juno, and François Treyve. Mr. Tranter, Upper Assenden, Henley-on-Thames, followed with smaller but good plants.

BEGONIAS.—In the class for a group of Tuberous Begonias there were three exhibitors, Messrs. John Laing and Co., Forest Hill, occupying the chief position with very handsome plants representing all the best varieties in commerce. A large number of unnamed seedlings of unusual merit were also shown. The best of the varieties were Devoniensis, J. W. Ferrand, Madame Hunnebell, Mrs. Laing (fine white), Colstonii, and Countess of Rosslyn (very large, pale pink). This very handsome group attracted great attention. Mr. H. Coppin, nurseryman, Shirley, Croydon, followed with a collection that included many excellent plants, W. E. Gladstone and Rêve d'Or being especially noticeable. Messrs. Hooper and Co., Covent Garden, were third with a very good selection of varieties.

HERBACEOUS AND ALPINE PLANTS.—The two groups of these plants were greatly admired, as hardy plants invariably are. Messrs. Osborn and Sons, Fulham, held the chief position with a handsome collection. The most attractive of the numerous plants shown being the following:—Saxifraga nepalensis with immense panicles of its white flowers; Veronica neglecta with long spikes of purplish blue flowers; Verbascum phœniceum, a very beautiful form with dark purple blooms closely set on the stem; Erigeron philadelphicum, a pretty little Composite with pink capitula; Iris acuta, with pretty pale purplish blue flowers; and Hemerocallis flava, the yellow Day Lily. Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, was second with a very tastefully arranged group, in which superb Aquilegias predominated; Lupinus bicolor and Meconopsis nepalensis were also very noticeable. This group, though far more effective and elegant than the other, contained less variety.

FINE-FOLIAGE PLANTS.—The display of these plants was not quite so extensive as usual, but the specimens exhibited were extremely fine. Mr. Rann occupied the chief position with grand specimens. Cycas revoluta was magnificent, Croton variegatus finely coloured, Croton Andreanus handsome, and C. interruptus very fine. Mr. Tudgey followed with good plants, the specimen of Cycas revoluta being but little inferior to Mr. Rann's specimens. Mr. Penfold, gardener to the Rev. Canon Bridges, was third with a good collection in which Croton Hendersoni was very fine.

FERNS.—The competition in the amateurs' class for these plants was very close and good, no less than seven collections being staged. Mr. Rann was adjudged the premier award for enormous plants, of which Davallia Mooreana and Gleichenia Mendelli were in excellent health. Gleichenia microphylla was 6 or 7 feet in diameter, but not very fresh or vigorous. Mr. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, was placed second with a collection that was nearly equal to the first in merit, all the plants being in the most vigorous health and as fresh as could be desired. Thamnopteris australasica was of enormous size, some of the fronds exceeding 6 feet in length and nearly a foot in breadth. Dicksonia antarctica was in fine condition, and Davallia bullata was also very fresh and well grown. Mr. Child was third, his collection including a handsome Todea superba and Microlepia hirta cristata, both good specimens growing most vigorously. In the corresponding nurserymen's class Mr. B. S. Williams was the only exhibitor, and was adjudged the premier prize for handsome examples of Adiantum gracillimum, Gleichenia flabellata, G. Mendelli, and Dicksonia antarctica.

GROUPS OF PLANTS.—The groups, as is usual, contributed very largely to the brilliant appearance of the Exhibition. They occupied various positions in the large marquee, and a portion of one side in the long tent. In the open class for a group of plants to occupy a space of 300 square feet, Mr. B. S. Williams was awarded the premier prize for a handsome collection of Orchids and miscellaneous plants that were arranged on one of the mounds in the large tent. Fine clumps of Epidendrum vitellinum were especially noticeable; Masdevallias were numerous, with fine specimens of Anthurium Schertzerianum and many other beautiful plants from the Holloway nurseries. The arrangement was very tasteful, and the group was greatly admired by the visitors. This was the only collection in the open class for plants in flower, the majority of the groups shown being either in the class for miscellaneous plants or that for fine-foliaged plants alone.

The open class for groups of miscellaneous plants was remarkably well filled, no less than seven collections being staged, all possessing more than ordinary merit. The premier award was adjudged to Mr. A. Blake, Britannia Road, Fulham, for a novel arrangement of Ferns, somewhat in the style of a miniature fernery. The Judges evidently experienced a difficulty in deciding upon this award, and many visitors were of the opinion that the exhibit referred to was not of such a character as entitled it to rank as a group in the ordinary acceptation of the term, and that its merit would have been more justly recognised by an extra prize, the class prizes being distributed among the other exhibitors. Messrs. John Laing and Co., Forest Hill, occupied the second position with a large group. Ferns, Palms, Crotons, &c., were lightly and pleasantly arranged, and margined with Calceolarias, Gloxinias, Ericas, and Tuberous Begonias. This group was very meritorious, being only slightly deficient in colour. Mr. J. Ford, gardener to E. O. Coope, Esq., The Rocketts, Brentwood, was accorded the third prize for a large and bright group, of which the only defect was its somewhat crowded appearance. It contained a large number of flowering and fine-foliage plants, Ixoras, Heaths, Crotons, and Ferns forming the bulk of the groups. Mr. Aldous, florist, Gloucester Road, had an extensive and pretty group. Variegated Maples, Liliums, Hydrangeas, and Spiræas were arranged in an agreeable manner, and an equal third prize was accorded for it. The three other contributions in this class were also very attractive; and since groups appear to be so popular it would be perhaps adviseable in future to award a few additional prizes. Mr. J. R. Bird, gardener to J. A. Causton, Esq., Lodgemore, Alleyn Park, Dulwich, had a tastefully arranged and elegant group, in which his fine standard Mignonette attracted much attention; and Mr. Rann had also a bright collection of plants.

The groups consisting exclusively of fine-foliage plants, arranged in a similar space to the other groups—namely, 300 square feet, were also numerous, five exhibitors having entered in competition. Messrs. Hooper and Co., Covent Garden, obtained the chief award for a handsome group, which contained some very fine specimens. Mr. Hudson followed with one of his tasteful arrangements, which are invariably greatly admired. In the centre was a specimen of Alocasia metallica in admirable condition. Mr. Rann took the third position with good plants, but not so tastefully arranged. Mr. Penfold and Messrs. Osborn had also collections of considerable merit.

New Plants.—In the class for twelve new plants not in commerce Mr. William Bull was adjudged first honours with the following specimens in grand condition:—Adiantum aneitense, very elegant; Aralia elegantissima, a noble plant; Dieffenbachia rex, fine well-marked foliage; D. regina, marbled with green and white;

Rhopaloblasta princeps, a most elegant Palm resembling a Dæmonorops; Vriesia Falkenbergii, a striking curiosity with coral red bracts tipped with pinkish white that attracted much notice; Spiræa Aruncus astilboides, a mass of snow-white plumes, and chastely beautiful; Croton insignis, like an enlarged C. Queen Victoria; Illicium religiosum variegatum, somewhat resembling Eurya latifolia, but much clearer in the markings; Anthurium insigne; Davallia fijiensis, and Selaginella involvens variegata. Mr. B. S. Williams followed with Alsophila tomentosa, very elegant; Cocus Baptistii; Aralia nobilis, an imposing plant; Croton Dodgsoni, very bright with narrow leaves; C. Rodeckianus, bright and drooping; Wallichia zebrina; Nepenthes Dormanniana; Dracæna Mrs. Turner, green and white; Sanseveria aurea marginata; Calamus densus, an elegant Palm; Dieffenbachia latimaculata, and Asplenium Baptistii, a most distinct Fern with very dark and elegant fronds. In the other class for new plants—namely, for those sent out since 1877, Mr. W. Bull was again first with a handsome collection, which included such fine plants as Philodendron Carderi, with velvety cordate leaves shaded with dark and light green; Juncus zebrinus, the zebra-striped Rush; Thrinax barbadensis, a neat fan-leaved Palm; Dieffenbachia Leopoldi, leaves bright green, the midrib of which is white and prominent; Ceratozamia fusco-viridis, a very distinct Cycad with pinnate shiny green leaves; Oncidium Gardnerianum, very pretty, flowers marked with yellow and brown; Cyphomandra argentea has elliptical silvery leaves with bright green veins, and Sarracenia atro-sanguinea, a beautiful form of the Side-saddle Flower. The others were Encephalartos Frederici-Gulielmi, Gymnotheca Raddiana, and Plectocomia himalayana, an elegant pinnate-leaved Palm. Mr. Rann was second in this class with a good selection of new plants in excellent condition.

MR. BULL'S PRIZES.—Some very fine examples of culture and many beautiful plants were staged. In class A (private growers), for plants introduced since the beginning of 1877, the first prize and cup was awarded to Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Sussex, with splendidly grown examples of Croton Williamsii, C. Princeps, C. Challenger, C. Hendersoni, C. roseus pictus, Kentia Wendlandiana, Dracæna Goldieana, Lomaria Dalgairnsiæ, Panax lacinatus, Dracæna vivicans, and Aralia filicifolia. The second prize was obtained by Mr. Penfold, who exhibited fine specimens of Davidsonia pruriens, Calyptronoma Swartzii, Dracæna vivicans, Alocasia Johnstoni, and Kentia Wendlandiana. In the corresponding nurserymen's class Mr. B. S. Williams was the only exhibitor, and obtained the chief silver cup with specimens of the following in addition to those already enumerated—Dracæna Robinsoniana, Cibotium pruinatum, Croton Williamsii. Lastrea aristata variegata, and Lomaria Dalgairnsiæ.

The silver cup in Class C, for private growers not having previously won any of Mr. Bull's cups, was won by Mr. Selway, gardener to Sir J. H. H. Amory, Bart., M.P., Knightshayes, Tiverton, with a well-selected assortment of finely grown plants. The second prize was obtained by Mr. J. McIntyre, gardener to Mrs. G. Pease, Woodside, Darlington, for specimens of the following that were not included in the other collections—Curmeria Wallisi, Croton princeps, and Aralia gracillima. In the corresponding nurserymen's class Messrs. Osborn and Son, Fulham, were awarded the chief prize for the only collection staged. In addition to those already noticed Asparagus falcatus and Carludovica Drudei were especially noteworthy.

MISCELLANEOUS EXHIBITS.

These were extremely numerous and interesting, the extensive and handsome groups of plants exhibited by the various nurserymen contributing an important attraction to the Show. One of the most noticeable of the groups in the marquee was the grand collection of Dracænas from the General Horticultural Company. This handsome group was margined with Gloxinias and Adiantums, and well merited the gold medal that was awarded for it, a similar recognition being accorded to Messrs. James Carter and Co., High Holborn, for a most extensive collection of Coleuses and other plants. Among the Coleuses all the fine new varieties that this firm has obtained were well represented. A gold medal was also awarded for the handsome group of new and rare plants from Mr. W. Bull, which occupied a large portion of one of the banks, and included examples of his best introductions. Sarracenias, Dracænas, &c., were well represented.

Specimens of new varieties of Coleuses, extremely bright and fresh, were noticeable. Spiræa Aruncus astilboides, Blandfordia princeps, Hæmanthus Kalbreyeri, together with a cluster of Epidendrum vitellinum, were some of the most noteworthy features of the group, which was one of the brightest and most interesting in the Exhibition.

Mr. J. James, gardener to Mrs. Watson, Redlees, Isleworth, had a handsome group of Calceolarias, for which a silver Flora medal was awarded. These plants were extremely fine, being dwarf and compact in habit, the flowers very numerous, large and richly coloured. Messrs. W. Cutbush and Son, Highgate, were awarded a silver Banksian medal for a tasteful and attractive collection of plants, including chiefly Heaths, Palms, Ferns, Statices, and pans of Pansies. A collection of uncommonly handsome Calceolarias and Gloxinias was exhibited by Mr. W. Rapley, gardener to J. Brand, Esq., Bedford Hill House, Balham. The Calceolarias were especially noteworthy for their good habit and fine flowers. A silver medal was accorded for this exhibit. Messrs. F. and A. Smith, Park Road, West Dulwich, contributed a group of seedling Pelargoniums, including many varieties of great merit. A bronze medal was awarded. Mr. Aldous sent some well-grown Mignonette in 48-size pots, the plants being very dwarf and sturdy, and also table decorations, the flowers, &c., being arranged in gold-coloured trays and baskets of various sizes and depths, which the lady visitors greatly admired. A silver-gilt Flora medal was awarded for Mr. Aldous's contribution.

A silver Flora medal was awarded to Messrs. Kelway and Son for a collection of Pyrethrum blooms, very fine. A silver Banksian medal was awarded to Mr. Pearson, Chilwell, for a collection of Pelargoniums; and a vote of thanks to Mr. A. Parmley, 19, Bankside, S.W., for elegant bridal and ball bouquets. A silver-gilt Banksian medal was obtained by Messrs. H. Lane and Son, Great Berkhampstead, for a group of pyramidal Ivies. Mr. B. S. Williams was adjudged a silver Flora medal for a group of plants, among which a fine plant of Coleus Miss Rosina was noticeable, with neat leaves, yellow flaked with crimson. A silver Banksian medal was accorded to Mr. Boller for groups of succulent plants; and votes of thanks to Messrs. Dobson and Sons, Isleworth, and Mr. Ford for good collections of herbaceous Calceolarias. From the Society's garden at Chiswick came various groups of plants, the Cape Pelargoniums and Tuberous Begonias being especially noticeable.

CUT FLOWERS.

Of these the display was not extensive, but the Pansies produced a rich effect, and the double Pyrethrums were splendid. In the class for cut blooms of not less than twenty-four Pansies, Mr. Hooper, Bath, was placed first with grand blooms in rich and varied colours of Show and Fancy varieties. Mr. Catley, Bath, second; and Messrs. Downie and Laird, Edinburgh, third. These collections of brilliant flowers were greatly admired, the Scotch flowers being clearly belted, and not shown on white collars as the others were. Messrs. Hooper and Co., Covent Garden, were adjudged the chief prize for a miscellaneous group of cut flowers, which embraced many varieties of Irises, with Delphiniums, Rockets, Pæonies, Centaureas, Pyrethrums, Aquilegias, &c. Messrs. Osborn and Sons, Fulham, were placed second with a smaller but more varied group. Messrs. John Laing and Co. exhibited cut blooms of Pansies and boxes of gorgeous Tuberous Begonias. Messrs. Kelway and Son, The Nurseries, Langport, had a magnificent collection of double Pyrethrums in nearly fifty varieties, the flowers being in a great variety of colour, large, full, and fine, some of them resembling Chrysanthemums—the finest collection of these flowers probably ever seen exhibited.

FRUIT.

This important section of the Show attracted great attention, and deserved it, for both in extent and quality for this period of the year the display was an excellent one, many dishes being very superior, and a few only containing fruit of poor quality.

PINES.—In the class for two fruits only one pair was staged, and no award was made. Through a misapprehension in making the entry Mr. Fry, gardener to J. Baker, Esq., Haydon Hall, Eastcote Pinner, missed the first prize with good and well-ripened Queens about 4½lbs. in weight. This exhibitor was awarded first honours in the class for single fruit of Queens with a good and well-ripened example. Mr. Bailey, gardener to T. T. Drake, Esq., Shardeloes, Amersham, second with a rather larger fruit but not perfectly ripe; Mr. Coleman, gardener to Earl Somers, Eastnor Castle, being a close third with a smaller but well-ripened specimen. In the Smooth-leaved Cayenne class only one plant was staged by Mr. Sage, gardener to Earl Brownlow Ashridge, and a second prize awarded. In the class for any other variety Mr. Bates, gardener to J. E. Meek, Esq., Poulett Lodge, Twickenham, was placed first; and Mr. Breese, gardener to Mrs. Akers, Moreton Hall, Congleton, second with Charlotte Rothschild. Sixteen fruits were staged altogether.

GRAPES.—Of these there was an extensive and highly creditable display. There were eleven exhibitors of three bunches of Black Hamburghs, eight of any other black variety, ten of Muscat of Alexandria, and fourteen of any other white variety—a total of 168 bunches.

The competition in the Black Hamburgh class was very good; Mr. Lowden, gardener to F. Barnes, Esq., The Quinta, Salop, being worthily awarded first honours for full well-formed bunches, nearly 3 lbs. in weight, and good, regular-sized, and well-coloured berries. Mr. Crump, gardener to the Duke of Marlborough, Blenheim, was placed second with small bunches, but fine, black, and well-finished berries; and Mr. Edwards, gardener to Mrs. Tristram, Fowley, Liphook, Hants, third with medium-sized bunches and berries, but admirably finished. Mr. Ross, Welford Park; Mr. Woodbridge, Syon; Mr. Sage, Ashridge; and Mr. Johnstone, Bayham Abbey, exhibited well in this class.

In the class for any other black Grapes Mr. Lowden was again placed first with handsome bunches of Buckhardt's Prince, very fine and even in berry. Mr. Bolton, gardener to W. Spottiswoode, Esq., Coombe Bank, Sevenoaks, was an excellent second with Black Prince, admirably finished; and Mr. Miles, gardener to Lord Carington, Wycombe Abbey, third, with remarkably well-finished examples of Muscat Hamburgh. Mr. Mowbray, gardener to the Earl of Leven and Melville, Fulmer, Slough, exhibited very fine bunches of Black Prince, but not fully ripe.

In the Muscat of Alexandria class some very good bunches were staged, but all of them were not ripe. Mr. Edwards, Liphook, well won the chief position with long tapering bunches and good and well-finished berries; Mr. Coleman being an excellent second; Mr. Lowden third with very good bunches and very large berries, but not fully ripe. In the class for any other white Grapes Mr. Johnstone, The Gardens, Bayham Abbey, Sussex, deservedly had the premier award with grand examples of Buckland Sweetwater, fine alike in bunch, berry, and finish. Mr. Mowbray, Fulmer Gardens, was a good second with medium-sized bunches and splendid berries in fine condition; Mr. Atkins, gardener to Col. Loyd Lindsay, Lockinge Park, Wantage, being third with fine examples of Foster's Seedling. Mr. Astlett, The Gardens, Warren Wood, Hartfield, and Mr. Iggulden, Orsett Hall, staged still finer examples of the last-named variety, but not perfectly ripe; and Mr. Edwards staged very fine Buckland Sweetwater.

Peaches.—Fourteen dishes of splendid fruit were staged, Mr. Coleman, Eastnor Castle, being placed first with grand examples of A. Bec; Mr. Bones, gardener to D. McIntosh, Esq., Havering Park, Romford, being a close second with Royal George, very fine; and Mr. Crump, gardener to the Duke of Marlborough, Blenheim, third with Barrington. Nectarines were also remarkably fine, notably the prize dishes; Mr. Miles, Wycombe Abbey, being first with Elruge, large and highly coloured; Mr. Holliday, gardener to J. Norris, Esq., Castle Hill, Bletchingley, second with Lord Napier, large but rather pale; and Mr. Nash, gardener to D. Fuller, Esq., Shoreham, Sussex, third with the same variety.

Cherries.—Mr. Miles was as usual in the first position with Governor Wood and Black Circassian; and Mr. Woodbridge, Syon, second with Frogmore Bigarreau and Belle d'Orleans. Mr. Miles was also first in the single dish class with Black Circassian; Mr. Austen, gardener to Sir Greville Smythe, Bart., Ashton Court, Bristol, second with Bigarreau Napoleon; and Mr. Woodbridge third with Belle d'Orleans.

Melons.—Of these the display was a very good one, thirty-one fruits being staged. A few were small, but the majority were of good size, a few being large, and most of them apparently in excellent condition, one or two being overripe. The first prize was awarded to Mr. Crump, gardener to the Duke of Marlborough, Blenheim, for a medium-sized oval delicately netted example of Blenheim Orange, a thin-rined few-seeded variety of excellent flavour. Mr. T. Coomber, gardener to J. H. Rolls, Esq., M.P., The Hendre, Monmouth, was placed second with a round and very handsome fruit of Hendre Seedling, a Melon evidently of considerable merit and high quality. Mr. Norman, gardener to the Marquis of Salisbury, Hatfield House, secured third honours with a very large fruit of Read's Scarlet-flesh.

STRAWBERRIES.—Of these nearly thirty fine dishes were staged. In the class for three dishes Mr. Norman, gardener to the Marquis of Salisbury, Hatfield, secured first honours with Sir C. Napier, Sir J. Paxton, and President; Mr. Goldsmith, gardener to P. C. Hardwicke, Esq., Hollanden, Tonbridge, second with James Veitch (extremely large), President, and Sir J. Paxton; and Messrs. Barnwell and Tilbury, Crescent Road, Worthing, third with the same varieties as the first-prize trio. For one dish Mr. Mortimer, gardener to Major Storer, Purley Park, Reading, was placed first with President, large and remarkably well coloured; Mr. James, Redlees, Isleworth, being a very close second with Sir J. Paxton; and Mr. Gibson, Halstead Place Gardens, Sevenoaks, third with equally fine fruits of the same variety, but not so well dished.

TOMATOES.—Eleven very large and handsome dishes were exhibited, first honours being well won by Mr. Iggulden, gardener to Capt. D. Wingfield, Orsett Hall, Romford, with grand smooth examples of Stamfordian. Mr. Crump, Blenheim, followed with an excellent dish of Hathaway's Excelsior; Mr. Miller, gardener to J. T. Friend, Esq., Northdown, Margate, with smaller but smooth crimson fruit of Hooper's Acme.

VEGETABLES.

There was a very marked advance in the number of entries in the vegetable classes, several of the collections staged being very meritorious. In the class for ten dishes ten collections were staged. Mr. Miles as usual occupied the premier position, staging in his well-known style good examples of Asparagus, Early White Naples Onions, Snowball Turnips, Nantes Horn Carrots, Laxton's Unique Peas, Patch's Superb Cucumbers, Improved Lapstone Potatoes, Canadian Wonder Beans, Early London Cauliflowers, and Stamfordian Tomatoes. Mr. W. Iggulden, gardener to Capt. Wingfield, Ossett Hall, Romford, followed very closely with a generally excellent collection, his Trophy Tomatoes, Laxton's Unique Peas, and Woodstock's Kidney Potatoes being particularly good. The third prize was awarded to Mr. W. Chettleburgh, gardener to Col. Rous, Worsted House, Norwich. This collection included rather coarse Stamfordian Tomatoes, a fine bundle of Asparagus, and well-filled pods of Oxford Tom Peas. Mr. Crump of Blenheim, and Mr. Haines, gardener to the Earl of Radnor, Coleshill, Highworth, also exhibited very creditable collections.

MESSRS. SUTTON AND SONS' SPECIAL PRIZES.

In the class for four half pecks of Peas there were eight competitors. In some instances the pods were too full, in others not full enough. The best and most even lot was staged by Mr. W. Iggulden, which consisted of Suttons' Bijou, Suttons' Ringleader, Laxton's Unique, and William I. The prizes awarded was a silver medal and one guinea. Mr. J. S. Bellis, gardener to Major Thoyts, was awarded the second prize, a bronze medal and one guinea; and the third prize was awarded to Mr. J. Clarke, gardener to Lord Hastings, Melton Constable; and the fourth to Mr. T. Lockie, gardener to Lord O. Fitzgerald, Oakley Court, Windsor. For two kinds of Melons and two kinds of Cucumbers there were six competitors, the Melons staged in nearly every instance being very good. The first prize (a gold medal) was awarded to Mr. G. Goldsmith, gardener to P. C. Hardwicke, Esq., Hollanden, Tonbridge, for well-ripened examples of Hero of Bath and Read's Hybrid Melons, and the Duke of Connaught and Suttons' Improved Telegraph Cucumbers. To Mr. T. Lockie was awarded the second prize (a silver medal and one guinea). This exhibitor staged rather better examples of the Duke of Connaught and Suttons' Improved Telegraph Cucumbers, and large but rather unripe specimens of Suttons' Royal Botanic and the Hero of Bath

Melons. Mr. Crump, Blenheim, secured the third prize; and Mr. Howe, Benham Court, Newbury, the fourth.

IMPLEMENTS AND SUNDRIES.

The show of horticultural buildings, mowing machines, and other garden requisites was scarcely so extensive as usual. The first to be noticed was a well-built span-roof plant house, erected by the Messrs. Foster and Pearson, Beeston, Notts. It is a combination of wood and iron, and is very light and well ventilated on the improved lantern system. This house is rendered gay with many of the noted Chilwell varieties of Zonal Pelargoniums, and near this are two highly useful span-roof portable pits also made on a very good principle, and received the award of a medal. Mr. W. Richardson of the Meadow Foundry Company, Mansfield, arranged a great variety of iron fountains, vases, garden seats, and rollers, also an improved form of throttle valves. The advantages attending the use of this valve is, that the seat and the valve can be easily removed and repairs effected without any interference with the pipes. Messrs. Johnson Brothers and Co., 6, Waterloo Place, Pall Mall, London, exhibited examples of portable fencing, and also specimens of their methods of roof-glazing with plate glass. Mr. W. Clark, 232, Oxford Street, submitted their patent grass cutters, which are made on the same principle as horse clippers, and will be useful to owners of very small gardens, and for certain positions in larger establishments. Mr. Watson, St. Alban's Nurseries, exhibited specimens of his rather novel guinea suspension boiler, which is said to be powerful, and is besides very simply constructed, and easily set or rather hung. Messrs. Waite and Huggins, London, exhibited their Excelsior mowing machines in various sizes in an improved form and received a medal. Messrs. Joseph Davis and Co., London, showed a number of their new barometers. Messrs. J. Thomas and Co., The Paddington Iron and Wire Works, had a very extensive assortment of wire flower stands, hanging baskets, aviaries, archways, garden seats, and mowing machines, all being specialties of this firm. Mr. J. C. Fox sent rustic summer houses. Messrs. Weeks exhibited one of their powerful patent duplex boilers; and

Messrs. Clay and Levesley and Prentice Brothers had samples of their horticultural manures. Sundry other articles, such as artificial flowers, skeletonised leaves, dinner-table decorations, &c., were on view in the Council-room and the adjoining corridor.

FLORAL COMMITTEE.

Dr. Denny in the Chair.

The various plants and flowers submitted to the attention of this Committee were arranged in the Council-room as usual, and included several of considerable beauty and interest. By far the most remarkable plant exhibited was a grand specimen of the handsome Orchid Cattleya gigas from Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking (gardener, Mr. Spyers). It was a single plant, growing partly on a block that was placed in a large pot, and it was considered as the finest specimen ever exhibited. The foliage was very large and vigorous, and the plant had over a dozen spikes, bearing from three to six flowers each, which were also of good size, and with richly coloured lips. A gold medal was very deservedly awarded for this extremely handsome plant. Sir T. Lawrence also showed small plants of Odontoglossum vexillarium roseum, the blooms being of great size and finely coloured, and a variety with pure white labellums.

Mr. Bull gained a first-class certificate for a specimen of the new Spiræa Aruncus astilboides, which is regarded as a variety of the well-known S. Aruncus, though resembling it but slightly in general appearance. The flowers are very closely set in long feathery panicles, and the plant will prove a valuable addition to the number of really decorative plants. Mr. W. Brown, Brent Nurseries, Hendon, was awarded a first-class certificate for a decorative Pelargonium named Eclipse, of compact sturdy habit, with neatly formed flowers of a bright crimson hue, the upper petals being very dark. Mr. G. Garraway, Lower Swainswick, Bath, obtained a similar award for an extremely good tricolor Pelargonium named Mr. G. Garraway, the leaves of which were of moderate size, round in outline, and marked with uncommonly rich shades of crimson. Mons. V.

Lemoine was also adjudged a first-class certificate for a distinct and attractive Ivy-leaf Pelargonium named Mons. Dubois. A very attractive hybrid Ismene named Sulphur Queen, contributed by Col. R. T. Clarke, also received a similar recognition.

Votes of thanks were accorded to Dr. Patterson of Fairfield, Bridge of Allan, N.B., for a beautiful collection of Orchid flowers, among which Odontoglossums, Oncidiums, Cypripediums, and Masdevallias were admirably represented; to Mr. W. Hall, gardener to W. Stevens, Esq., Springfield, Tulse Hill, for cut blooms of Maréchal Niel Rose in excellent condition; and to Mr. H. Parr, Givons Grove, Leatherhead, for a collection of Carnation blooms. Among the other exhibits were a group of hybrid Sarracenias, Nepenthes, and Japanese Maples from Messrs. J. Veitch and Sons, Chelsea; seedling Pansy blooms from Messrs. Cocker and Son, Sunny Park Nurseries, Aberdeen; some new and beautiful Tuberous Begonias, and a bright blue Lobelia named Union Jack, from Messrs. Charles Lee and Son, Hammersmith; a fine plant of Brassia verrucosa, with six long spikes of flowers, from W. Roebuck, Esq., West Lodge, Acton, (gardener, Mr. Ellis); and cut blooms of new Pyrethrums from Messrs. Kelway and Son, Langport, Somerset. These flowers were of extraordinary size, semi-globular in form, and bright in colour.

FRUIT COMMITTEE.

Henry Webb, Esq., in the Chair.

Mr. Wildsmith, gardener to Lord Eversley, Heckfield, sent a tray of President Strawberries, which were of great beauty and excellence. A cultural commendation was awarded. Mr. Reeves, gardener to C. Hart, Esq., Lee, exhibited a dish of Apples called Linton Late-keeping, which was not considered worthy of a certificate. Mr. W. Gardener, The Gardens, Etington Park, sent a branch of Lord Suffield Apple, studded with young fruit. Mr. Gardiner also exhibited a branch of Beaugé Apricot, showing its highly prolific character; the tree was shaded with canvas. A letter of thanks was awarded. Mr. Lyon, Sundridge Park, Kent, sent a dish of Mushrooms, to which a cultural commendation was awarded. Mr. Miles, The Gardens, Wycombe Abbey, sent a dish of new seedling Pea raised by Mr. Laxton, called Minimum. Mr. Miles stated that the seed was sown February 17th, and the Peas were fit to gather May 25th. It was recommended to be tried at Chiswick. Mr. R. Dean, Ealing, sent a seedling Potato, called Early Cluster, which was also recommended to be sent to Chiswick for trial. Mr. Sage, The Gardens, Ashridge Park, exhibited a dish of Brown Turkey Fig of great excellence both in size and quality, to which a cultural commendation was awarded. Charles Eyre, Esq., of Welford Park, Newbury, sent a fine dish of Bourgassotte Grise Fig under the name of Brown Turkey, to which a cultural commendation was awarded. Mr. Watson of St. Albans exhibited a pair of Cucumbers, which were not considered of superior merit to others in cultivation. Mr. J. Allsopp, gardener to Lord Hotham, Dalton Hall, Hull, sent a seedling Melon, a handsome scarlet-flesh fruit, but not sufficiently ripened, very promising, and it was hoped that it would be sent again. Mr. J. Chilton, The Gardens, Aston Rowant, Tetsworth, sent a seedling Melon called Chilton's Hybrid Hero of Bath, a handsome-looking scarlet-flesh variety, but not sufficiently ripe, and not equal to others in cultivation. Mr. C. Howe, The Gardens, Benham Park, sent a scarlet-flesh Melon called Benham Park Gem, which was exhibited three years ago, but it was not considered equal to others in cultivation.

SCIENTIFIC COMMITTEE.

Arthur Grote, Esq., in the Chair.

The Secretariat.—The Rev. Geo. Henslow, the newly-appointed Secretary to the Committee, entered upon the duties of his office.

Plants Exhibited.—Mr. Lynch, Curator of the Cambridge Botanic Garden, exhibited cut specimens of the following plants, and made some comments on them:—Arctotis arborescens, a Centaurea-like plant, from South Africa, of which it is believed that the Cambridge Botanic Garden possesses the only living example. It is a perennial Composite, about 2 feet in height, covered with grey shaggy pubescence, pinnately-lobed leaves and flower-heads, some 2 inches across, with a short scarious involucre, and numerous pink rays. Mr. Lynch is about to try it as a bedding plant. Lathyrus Sibthorpii, Eremurus spectabilis, Syringa persica laciniata, in flower; Pyrus coronaria, a handsome late flowering species—the Apple-like flowers have a delicious perfume of Violets; Cytisus Laburnum involutum in flower; the Sun Hemp of India—Crotalaria juncea; and specimens of Cuscuta reflexa, to show its effect upon the stems of a Pelargonium.

Pitcher on Broccoli.—Mr. W. G. Smith exhibited a young Broccoli plant with a pitcher developed on a stout peduncle in place of the usual raceme of flowers. The example was received with native Cornish specimens of Arum italicum, from Mr. W. Roberts, of Penzance.

Australian Insect.—Specimens were sent by Mr. Protheroe of an insect (Coccus ?) supposed to have been imported from Australia to Cape Town, and which were referred to Mr. McLachlan for examination and report.

Malformed Peach Blossom. — A malformed Peach blossom, formed on the shoot of the year, was referred to Dr. Masters for examination and report.

Malformed Fritillary.—Rev. George Henslow showed drawings of flowers of Fritillaries, in which one side of the flower, including the perianth and stamens were arrested in development on that side of the flower; thus showing an approximation to what occurs in Pontedera, various Commelynaceæ, &c.

Double Calceolaria.—Dr. Masters showed drawings by Mr. W. G. Smith of malformed Calceolarias received from Mr. Burbidge, and in which supernumerary stamens were developed in the shape of petal-like tubes or bags enclosed within the true corolla.

Hybrid Ismenes.—Col. Trevor Clark showed two hybrids, one a cross between Elisena longipetala and Ismene calathina, the result of which was a plant identical with Ismene deflexa; the other a cross between Ismene Amancæs and I. calathina, the result of which was a plant known formerly as the "sulphurescent mule." A first-class Certificate had been awarded by the Floral Committee to the latter plant.

Lilium nitidum.—A plant was shown under this name, and referred to Mr. Elwes for examination and report.

Phylloxera.—Some conversation took place on this subject, in the course of which Dr. Masters alluded to the steps taken by the Society, as well as by various foreign societies, to obtain some modification of the needlessly oppressive regulations adopted by the Berne Convention.

June 22nd, 1880.

ORDINARY GENERAL MEETING.

William Haughton, Esq., in the Chair.

Elections.—Finlay Campbell, Miss Gunnis, Charles Cyril Hick, M.D., George Moffat, Mrs. Thomas.

The meeting held on the above date was not distinguished by a great display, the entries being comparatively few. Collections of new plants formed the principal feature, several being especially attractive.

FLORAL COMMITTEE.

Dr. Denny in the Chair.

Several collections of new and beautiful plants were staged, Pelargoniums being numerous. Messrs. Veitch's group was very attractive, and in addition to the certificates which were awarded a cultural commendation was adjudged for two good specimens of the pretty Campanulaceous plant Platycodon grandiflora, flowering very freely. Of the Pelargoniums those from Mr. G. Braid, Winchmore Hill, and Mons. V. Lemoine, 67, Rue de l'Etang, Nancy, were particularly attractive. A collection of Zonals from Mr. P. Fry, Addington, Maidstone, supposed to be hybrids between Geranium pratense and several Zonal varieties, also received much attention. They were stated to be perpetually flowering forms, but the peculiar large distorted trusses produced rendered them more strange than ornamental. Messrs. Hooper and Co., Covent Garden, were awarded a vote of thanks for specimens of the so called "Resurrection Plant," Selaginella lepidophylla, dried plants of which expand when placed in water. Mr. Aldous, Gloucester Road, staged a group of miscellaneous plants in the conservatory.

The following exhibitors were awarded first-class certificates for the plants described:—Messrs. J. Veitch and Sons; *Asparagus plumosus nanus*, a dwarf form of that beautiful species with similarly elegant leaves, but only about 6 or 8 inches in height; *Pteris serrulata cristata bella*, a form of this well-known Fern, in which the terminal crest is very finely and elegantly divided, the general habit also being graceful; *Erythrina marmorata*, an attractive plant, with finely variegated foliage. Mr. W. Bull, Chelsea; *Lilium nitidum*, a distinct and pretty Lily, with small orange-coloured spotted flowers resembling L. parvum, but differing from that in the bulbs. Messrs. Hooper and Co.; *Canna Ehemanni*, a showy plant with large rosy crimson flowers, in the way of C. iridiflora. Mr. V. Lemoine; *Pelargonium Madame Thibaut*, a handsome Show variety, with semi-double flowers of a bright purplish tinge margined with white, and also an unnamed seedling with white flowers marked with a dark blotch in the centre of each petal; *Fuchsia Madame Galli Marie*, a floriferous double variety with large flowers, the corolla white, and the calyx rich scarlet. Mr. G. Braid; *Pelargonium Zulu Belle*, one of the "decorative" section, of compact habit, bearing neat trusses of symmetrical flowers, white, with a deep purple blotch in the centre of each petal. Mr. C. Turner, Slough; *White Pink, Mrs. Sinkins*, an extremely fragrant and floriferous variety, with blooms of great size and fine form. J. McIntosh, Esq., Duneevan, Oatlands Park, Weybridge (gardener, Mr. Taylor); *Lilium polyphyllum*, a rare species, with flowers of a moderate size, of a somewhat creamy tint, spotted and streaked inside with purple. Two Ivy-leaved Pelargoniums from the Society's Garden at Chiswick were also certificated—namely, *Gloire d'Orleans* and *Mons. Dubus*, both of M. Lemoine's raising. They were very compact in habit, with neat trusses of pink flowers, those of the latter being of a lighter tint.

FRUIT COMMITTEE.

HENRY WEBB, Esq., in the Chair.

Mr. Carmichael, gardener to H. P. Oakes, Esq., Newton Court, Bury St. Edmunds, sent fruit of a seedling Cucumber called Silvio, but as the fruit was too old and had been cut for some time a favourable opinion could not be expressed upon it, and the Committee hoped to see it again. Mr. H. Thetford, Victoria Nursery, Forest Hill, sent a brace of handsome Cucumbers called Thetford's Champion, somewhat in the way of Telegraph but larger and coarser. It was not considered superior to others in cultivation. Mr. R. Dean, Ealing, sent two plants of Early Cluster Potato, said to have been raised from Porter's Excelsior and Early Market, and grown in 8-inch pots. It is a round Potato with foliage resembling some of the American varieties. The Committee were of opinion that it was a promising early variety, but before giving it an award suggested it be sent to Chiswick to be tried along with other varieties. Mr. Woodbridge, The Gardens, Syon House, exhibited a dish of Early Cluster Tomato, a small oblong red Tomato, which showed great fertility. The fruit was rather pasty in its texture and was rather deficient of acidity. A letter of thanks was awarded. Mr. Dean sent some plants of Peas grown in pots, to which a letter of thanks was awarded.

Messrs. James Veitch and Son exhibited dishes of Sturmer Pippin and Golden Noble Apples, grown and brought home by Mr. Marriott of Campbell's Creek Nursery, Castlemane, Victoria, Australia. The specimen was very handsome in form and colour, and the Sturmer Pippins were deliciously flavoured, the flesh being particularly delicate and tender. They were gathered on April 24th, packed on May 1st, and brought home by way of the Red Sea by Mr. Marriott, who arrived in England on June 16th. A cultural commendation was awarded.

Mr. Thomas Sutton, The Gardens, Worksop Manor, exhibited a Black Prince Pine, to which a cultural commendation was awarded. Mr. R. Gilbert, Burghley Gardens, Stamford, exhibited Gilbert's King of Melons, a fine green-fleshed variety, but it was much overripe and disagreeable in flavour. Mr. James Hopkins, gardener to

R. Thornton, Esq., High Cross, Framfield, exhibited High Cross Hybrid Melon, a handsome green-fleshed variety, which unfortunately was not ripe, though it promised a fine flavour. Mr. A. Hopkins, gardener to R. Johnson, Esq., Remnal Manor, Chislehurst, sent Omant's Favourite Melon, the flavour of which was not agreeable.

SCIENTIFIC COMMITTEE.

SIR J. D. HOOKER, K.C.S.I., in the Chair.

The meeting was thinly attended, and but few subjects were brought before it.

Coccus on Acacia.—Mr. MacLachlan reported that he had examined the specimens referred to him at the last committee, and had consulted M. Signoret upon the matter, with the result that the insect was determined to be a species of Pulvinaria allied to that which causes so much injury to the Sugar-cane in Mauritius.

Malformed Peach Blossom.—Dr. Masters reported that he had examined the flowers submitted to him at the last meeting, and found that it was produced on a stout stalk proceeding from the shoot of the year, a most unusual position in the case of the Peach. The sepals, petals, and stamens were all enlarged and thickened, but otherwise normal. The carpels were two in number.

Aristolochia ungulifolia.—Dr. Masters reported that the Aristolochia referred to him at the previous meeting was a species which he had named a few years since from dried Bornean specimens as A. ungulifolia. The present specimen was reported to have come from Java.

Alleged Hybrid Pelargonium.—Mr. P. Fry, Addington, sent specimens of a Pelargonium with very large proliferous trusses, and which it was supposed had originated as a cross between a Zonal Pelargonium and Geranium pratense—a view which the committee did not endorse.

Plants Shown.—Mr. Bull sent a Lily, referred by Mr. Elwes to L. columbianum, and which had the peculiar bulb of L. Washingtonianum and the foliage of L. Humboldtii. Other plants exhibited were Trichopilia hymenanthera, Bolbophyllum siamense, Angræcum sp., from the Comoro Isles, &c.

The following additions were made to the Lindley Library:—*Index Perfectus ad C. Lennæi Species Plantarum.* Given by Baron Von Mueller. *The British Moss-Flora.* Part I. By Dr. Braithwaite; purchased.

JUNE 29th.

Medals Awarded, Rose and Pelargonium Society's Show.—Silver Banksian, F. and A. Smith for a collection of Pelargoniums; Silver Banksian, Mrs. Pearson for a collection of Pelargoniums; Silver Banksian, H. Hooper for cut blooms of Panzies, Pinks, &c.; Silver Gilt Banksian, C. Turner for group of Pelargoniums; Silver Gilt Flora, Mrs. Hodgkins for Skeleton Leaves, Flowers and Ferns; Silver Gilt Flora, Barr and Sugden for cut blooms of Iris and Lilies; Silver Flora, James Carter and Co. for group of Annuals; Bronze Flora, J. Aldous for group of Plants; Gold Medal, H. Cannell for group of Begonias, &c.

The Rose Show of the Society and the Exhibition of the Pelargonium Society were as last year held in conjunction, and fortunately under the most favourable conditions as regards the weather. The exhibits too were numerous for the miscellaneous collections. Roses, Pelargoniums, and vegetables entirely filled a tent 500 feet in length. A few plants were staged in the Council-room, but one of the most pleasing and artistic features of the Show were the groups from Mr. H. Cannell of Swanley, which were staged in the vestibule. The plants were arranged on two long parallel tables leading from the entrance to the Council-room, the back row being formed of dark blue Delphiniums, the centre of Tuberous Begonias, and the front margin of Herniaria glabra, in which were dotted plants of the variegated Polemonium cæruleum and Lobelias alternately. Baskets of Pansies, Sweet Williams, and extremely fine Verbenas were also arranged at the ends, the general effect being most satisfactory. A gold medal was deservedly awarded for these artistic groups.

ROSE SHOW.

A large number of collections were staged in the eleven classes devoted to cut Roses, and the majority were distinguished by more than usual excellence. A charming freshness was generally evident in the blooms, the colours bright and clear, and many exceptionally handsome blooms were included in some of the collections. In the nurserymen's class for forty-eight single trusses there were five entries, the chief prize going to the Cranston Nursery and Seed Company, King's Acre, Hereford, for a collection of extremely fresh and even blooms. The most noticeable were Général Jacqueminot, grand; John Stuart Mill, fine; La France, good; and Marie Baumann, fine. Messrs. Curtis, Sanford and Co., Torquay, were second with a good collection, but not quite so neat. Mr. F. Cant, Colchester, was a good third with twenty-four triplets. Messrs. Cranston were again first, staging a very handsome collection. The following were the varieties :—Etienne Levet, Madame La Baronne de Rothschild, Exposition de Brie, La France, Le Havre, Madame Lacharme, La Rosière, Mons. Noman, Hippolyte Jamain, Mons. E. Y. Teas, Marquise de Castellane, Fisher Holmes, Madame Chas. Wood, Marguerite de St. Amand, Mdlle. Marie Cointet, Prince Camille de Rohan, Mons. G. Tournier, Madame Noman, Général Jacqueminot, Madame Marie Finger, Miss Hassard, Princess Beatrice, and Maurice Benardin. Messrs. Curtis, Sanford and Co. were second, and Messrs. Keynes and Co., Salisbury, third, both exhibiting collections nearly equal in merit. Messrs. Cranston, Curtis, and Kinmont and Kidd, Canterbury, were first, second, and third respectively with twenty-four single trusses, all fresh and bright. Messrs. Cranston had a very fine premier collection of twelve single trusses, Messrs. Kinmont and Kidd and

Keynes and Co. following with fair blooms, but rather weak in one or two points.

The amateurs showed remarkably well. In the principal class for twenty-four trusses there were five entries. R. N. G. Baker, Esq., Heavitree, Devon, obtained the chief honours with a handsome collection, including grand examples of Auguste Rigotard, La France, Duchesse de Caylus, Mdlle. Marie Rady, and Mons. E. Y. Teas. T. Jowitt, Esq., Old Weir, Hereford, was an excellent second, his Alfred Colomb being admirable. A. J. Waterlow, Esq., Great Doods, Reigate (gardener, Mr. Browne), followed with neat specimens. Out of seven exhibitors of twelve triplets Mr. Baker staged the finest and freshest blooms; Marie Baumann was very handsome, Auguste Rigotard neat, Charles Lefebre fine, Docteur André fine, and Mons. Etienne Levet in excellent form. T. Jowitt, Esq., was second, Exposition de Brie, Mons. E. Y. Teas, and Mdlle. Marie Cointet being well represented. G. P. Hawtry, Esq., Aldin House, Slough, was third with creditable blooms. J. B. Haywood, Esq., Reigate (gardener, J. Ridout), Mr. Jowitt, and the Rev. E. J. Fellowes, Wimpole Rectory, Royston, were first, second, and third with twelve single trusses, and extra prizes were awarded to J. H. Pemberton, Esq., The Round House, Havering-atte-Bower, and Mr. Baker. In the class for twelve Tea or Noisette Roses Mr. Fellowes obtained the chief prize with a neat collection; C. Davies, Esq., The Grammar School, Banbury, and Messrs. Cranston being second and third, Mr. Hawtry securing an extra prize. The six exhibitors in this class all staged fair examples of some of the best varieties in cultivation. The principal prizetakers in the classes for six Hybrid Perpetuals and six Teas or Noisettes were Messrs. Baker, Curtis, Cranston, and J. Davis, Esq., The Square, Wilton.

In the class for six new varieties of Roses of 1877-8 Messrs. Cranston obtained the chief award with Gaston Levêque, a large finely formed Rose of a rich crimson hue; Leon Renault, good form, very bright red, full; Madame Gabriel Luizet, light crimson, neat; Souvenir d'A. Thiers and Constantin Fretiakoff, somewhat alike in form and of a deep rosy crimson; and Marchioness of Exeter. Mr. G. W. Piper, Uckfield, was second with Mdlle. Marie

Verdier, Souvenir de Madame Robert, John Fraser, Barthelemy Joubert and Oxonian. Messrs. Curtis and Co. were third with Penelope Mayo, Boieldieu, Cannes la Coquette, Mdlle. Marie Verdier, Marie Louise Pernet, and Barthelemy Joubert.

MISCELLANEOUS EXHIBITS. — Several groups and collections were staged which attracted much attention. Among these the herbaceous plants from Messrs. Barr and Sugden were especially noteworthy, a silver-gilt medal being awarded. Mr. H. Hooper, Bath, obtained a silver Banksian medal for a collection of Pansies and Carnations. Messrs. Pearson of Chilwell contributed a fine group of Pelargoniums, for which a silver Banksian medal was awarded. Mr. Aldous, South Kensington, obtained a bronze Flora medal for a group of plants; Messrs. Carter and Co. a silver Flora medal for a large group of annuals; and Messrs. F. and A. Smith for a collection of Pelargoniums. A group of Pelargoniums from the Society's garden was also staged, and in the Council-room were some new plants from Mr. Bull, Chelsea. In the grounds Messrs. Foster and Pearson again exhibited examples of their frames.

The only exhibitor in the class for nine Tuberous Begonias, in which the prizes were offered by Messrs. Laing and Co., Forest Hill, was J. S. Law, Esq., South Lodge, Southgate (gardener, Mr. Tong), who was awarded the first prize.

SPECIAL PRIZES FOR VEGETABLES.

A fine lot of vegetables were staged in these classes, the competition with one exception being very keen. For the prizes offered by the Messrs. James Carter and Co. for fifty pods each of Carters' Stratagem, Culverwell's Telegraph, and Carters' Telephone Peas brought together five collections of these exceptionally fine varieties. The first prize was well won by Mr. J. Muir, gardener to C. R. M. Talbot, Esq., M.P., Margam Park, Taibach, South Wales, with magnificent pods, large and well filled; the second prize was awarded to Mr. J. Richardson, Boston, Lincolnshire; the third prize to Mr. G. T. Miles, gardener to Lord Carington, Wycombe Abbey, Bucks; the fourth to Mr. R. Phillips, gardener to Capt. Jackson, The Deodars, Meopham, Kent; and the fifth to Mr. W.

Iggulden, gardener to Capt. D. Wingfield, Orsett Hall, Romford, the exhibits in each instance being of great merit.

Nine exhibitors responded to the offer of prizes by the Messrs. Sutton and Sons, Reading, for twelve dishes of vegetables, the competition being very close indeed. The kinds were stipulated, but the varieties were left to the option of the exhibitors. Mr. G. Miles secured the premier award with excellent Nantes Horn Carrots, Early White Naples Onions, Canadian Wonder Beans, Seville Longpod Broad Beans, Culverwell's Telegraph Peas, Tender and True Cucumbers, Walcheren Cauliflowers, Wilmot's White Cos Lettuce, and good dishes of Munich Turnips, Pine Apple Beet, Victoria Cabbage Lettuce and Improved Lapstone Kidney Potatoes. Several of the collections staged for the remaining prizes followed very closely on the premier collection, the Judges experiencing considerable difficulty in awarding the prizes. The second prize was awarded to Mr. G. W. Meads, gardener to Viscount Barrington, Beckett Park, Shrivenham, who staged among other good dishes of Nantes Horn Carrots, Improved Lapstone Potatoes, Italian Tripoli Onions, Leviathan Broad Beans, and Duke of Connaught Cucumbers. Mr. Haines, gardener to the Earl of Radnor, Coleshill House, Berks, followed, his collection including good Seville Longpod Beans, Nantes Horn Carrots, and Suttons' Improved Telegraph Cucumbers. The remaining prizes were awarded to Mr. J. Muir, Mr. W. Iggulden, and Mr. J. Austen, gardener to Sir G. Smythe, Ashton Court, Bristol, in the order named. The latter exhibitor staged a wonderfully fine dish of Giant Rocca Onions.

Messrs. Webb and Sons' (Wordsley Stourbridge) prizes were offered too early in the season, which accounts for there being two competitors only. The prizes were for six kinds of vegetables, which include Webb's Triumph Pea (a main crop variety), and Webb's Banbury Onion. In addition to the stipulated varieties Mr. Iggulden staged good dishes of Woodstock Kidney Potato, Early London Cauliflower, Trophy Tomatoes, and Nantes Horn Carrots, and was awarded the first prize. Mr. W. Crump, gardener to the Duke of Marlborough, Blenheim, secured second honours with creditable dishes of Hathaway's Excelsior Tomatoes, Webb's Perpetual

Bearer, International Kidney, and Early London Cauliflower, in addition to the stipulated varieties.

The prizes offered by Messrs. Webber and Co., fruiterers, Covent Garden, for the best packed boxes of fruit, to consist of one box of Grapes, one of Peaches, and one of Strawberries, were obtained by Mr. W. Crump, gardener to the Duke of Marlborough, Blenheim Palace, Woodstock, and Mr. Wallis, gardener to the Rev. Walter Sneyd, Keele Hall, Newcastle, Staffordshire, in the order named, both with very careful examples of packing, the fruit having arrived in excellent condition.

THE PELARGONIUM SOCIETY SHOW.

The display of Pelargoniums was extremely good, all sections being well represented. Show, Fancy, and Zonal varieties were staged in considerable numbers, the competition in several of the classes being close. The new varieties were also especially fine, many of exceptional merit being exhibited. The schedule enumerated twenty-three classes, the first eight being devoted to new varieties not yet in commerce, and each class was in three divisions, a single prize being offered in each. From nine to nineteen were appropriated to specimens, and the remaining four classes to cut blooms.

The following were the chief exhibits in the classes for new Pelargoniums:—*Show Varieties.*—No prize was awarded in Class 1. In Class 2A, for three distinct Show varieties, Mr. C. Turner, The Royal Nurseries, Slough, was awarded the first prize. His varieties were Hector (Foster), symmetrical flower, bright salmon lower petals, very dark upper, with a lighter margin, and clear white eye; Maid of Perth (Foster), very fine flowers, rosy lower petals, distinct white centre, and very dark upper with narrow margin; Mountain of Light (Foster), flowers of moderate size, bright scarlet, and dark blotch in upper petals. In Division B, for two specimens, Henry Little, Esq., Hillington Place (gardener, Mr. G. Wiggin), was first with Ruth Little and Formosa, both of Jackson's raising; the former of a clear rosy colour, and the latter with creamy lower petals, the upper petals in each being very dark. In Division C, for one variety, the Rev. A. Matthews, Gumley, Market Harborough, was first with Sir W. Scott (Matthews), a fine flower with intensely dark upper petals and salmon scarlet lower petals, the flower being of good form. In Class 4A, for three, including market and regal varieties, Messrs. J. and J. Hayes, Edmonton, were first with Mr. John Hayes, Mrs. John Hayes, and Lady Isabel, all very floriferous varieties, and of good habit. In Division B Mr. Little was first with Bridesmaid and Rosy Morn, both of Jackson's raising; the former very attractive, with fine trusses of flowers; the lower petals white, and the upper veined and marked with crimson. In Division C Mr. C. Turner gained the first prize with Macbeth (Foster), a very distinct variety, flowers of great size, salmon hue, petals blotched in the centre, and very dark upper petals. Mr. Turner was the only prizetaker with three new Fancy Pelargoniums—viz., Queen of the Hellenes, Jenny Howlett, Lady Hardy, all very neat and distinct. *Zonal Varieties.*—In Class 5, Division A, Dr. Denny was first with Lalla Rooke, fine scarlet, immense trusses; Prima Donna, an exceptionally handsome white; Cynthia, fine magenta, neat flower and truss, habit dwarf. In Class 6A, for double varieties, Messrs. Saltmarsh and Sons, Chelmsford, won with Mrs. Arthur Lattey, fine pink, large truss; and Lord Cecil, handsome scarlet. In Division B Mr. Turner had a neat variety, named Kensington, with white flowers and yellow foliage; and one named Nancy Lee, with scarlet flowers and variegated foliage. Mr. H. Cannell staged the only new Ivyleaf variety, one of Sisley's raising, named Beauté de Lyon. The flowers were large, of good form, and somewhat of a scarlet tinge.

In the classes for specimens the exhibits were numerous. With six Show varieties Mr. Little was first, staging very symmetrical plants. Mr. C. Turner was second with smaller specimens, but bearing handsome flowers; Victory was especially noteworthy for the size and colour of the blooms. Mr. F. Hunt, York Lodge, Stamford Hill, was third with well-grown plants, but bearing few flowers. Mr. Turner was first with eighteen Show varieties, his collection included a good selection. Mr. Little and Mr. W. Meadmore, Romford, followed with fair specimens. Mr. Little staged the best collection of nine decorative varieties, the specimens being exceptionally fine, Kingston Beauty and Duchess of Edinburgh flowering grandly. Mr. C. Turner followed with plants bearing fine trusses but somewhat uneven. Third, Messrs. J. and J. Hayes with good plants. The prizes for eighteen Show varieties were obtained by Messrs. J. and J. Hayes and Mr. H. Little. Among the Fancy varieties Mr. C. Turner obtained the chief position with six plants remarkably well flowered. The Jewess, The Shah, and Princess Teck were fine. Mr. H. Little took the second position with handsome specimens; and Mr. Hodgson, The Elms, Hampstead, (gardener, Mr. J. Weir), was third.

The Zonals were very fine. In the class for nine Mrs. Lermitte, Finchley (gardener, Mr. J. Catlin), obtained the premier position with good specimens over 4 feet in diameter, and bearing numerous trusses of flowes; Fanny Cattlin, Lizzie Brooks, Mrs. Pearson, and Ellen were very handsome. D. Martineau, Esq., Clapham Park (gardener, Mr. J. Weston), was second with inferior plants, and Mr. W. Meadmore, third. Mr. Catlin, Mr. Little, and Mr. Meadmore received the prizes in the class for eighteen specimens. In the class for nine double-flowered Zonals Mrs. Lermitte was awarded the premier prize for symmetrical well-flowered specimens. G. Simpson, Esq., Wray Park, Reigate (gardener, Mr. J. King), and Mr. W. Meadmore being second and third respectively. Mrs. Lermitte was first with eighteen double Zonals; Mr. J. Balaam, Vine Nursery, Lower Clapton, second; and Mr. W. Meadmore third.

The cut blooms were remarkably fresh and good, some of the trusses being of enormous size and the colours brilliant. Show varieties were well shown by Messrs. Turner, Saltmarsh, and Meadmore, who gained the chief prizes. Zonals were grandly exhibited by Mr. H. Cannell, his collections attracting great attention; and other prize-winners in that class were Messrs. Saltmarsh, Meadmore, Mr. G. Duffield, gardener to H. K. Mayor, Esq., Winchmore Hill, and Mr. J. Dixon, Christchurch Lodge, Hampstead. Double-flowered varieties were well shown by Dr. Denny and Messrs. Saltmarsh; the only collection of Ivy-leaved varieties being from Mr. George, gardener to Miss Nicholson, Putney Heath.

Certificates were awarded for the following varieties—To Dr. Denny for a double Zonal variety named *Enchantress* (Denny), with large trusses of pink flowers and of good habit; for the single Zonal *Ulysses* (Denny), a handsome variety with symmetrical blooms in compact trusses, of a brilliant scarlet colour; *Progress* (Denny), a double Zonal of a rich scarlet shade, very neat flowers and good habit; *Prima Donna* (Denny), a handsome white Zonal variety, with flowers of excellent form and great substance. To E. R. Foster, Clewer Manor, for a Show variety named *Constitution* (Foster), with blooms of the most exact symmetry; the lower petals of a pale sallow pink hue, a white centre, and intensely dark maroon upper petals with a narrow margin; *Minotaur* (Foster), somewhat resembling the above, but with darker lower petals. To Henry Little, Esq., for an attractive decorative variety, *Bridesmaid* (Jackson). It was extremely floriferous, the blooms being slightly crimped; the lower petals white, and the upper light crimson; truss large, and habit compact. *Hayes' Seedling* (Hayes), a docorative variety, with very large flowers of a bright soft pink colour relieved by a small blotch in each petal. *Criterion* (Jackson), very free in habit; flowers of good form, colour rich scarlet. To Mr. W. Brown, Hendon, for a decorative Pelargonium, *Eclipse* (Brown), truss very compact; flowers of a pale cerise or pinkish tinge blotched with a deep tint. To Messrs. J. and J. Hayes for a decorative variety *Mrs. Ashby* (Hayes), very attractive; upper petals extremely dark; lower pink, clear white centre. To Messrs. Saltmarsh and Sons for the double Zonal *Lord Cecil* (Saltmarsh), a grand variety with enormous trusses of brilliant scarlet flowers.

July 13, 1880.

ORDINARY GENERAL MEETING.

G. T. Clark, Esq., V.P., in the Chair.

Elections.—Mrs. Firman, Francis Henry Hogg, Sydney Howard, Dr. J'Anson, Mrs. Keane, Robinson Kendal, Douglas Kingsford, Rev. H. D. McCheane, J. B. Sharpe, H. Villiers Stuart, M.P., James Waddell, Charles Westendarp.

Medals Awarded.—Bronze Banksian, James Carter and Co. for a collection of Lettuces; Bronze Banksian, H. Cannell for cut blooms of Verbenas.

The General Meeting was unusually large and interesting for this time of year, the Council-room being completely filled with plants, flowers, and fruit from a number of exhibitors. Tuberous Begonias were strongly represented; the other most noteworthy exhibits being the superb collection of Japanese Iris blooms from Messrs. J. Veitch and Sons, Chelsea, their Orchids and new plants and the collection of Lettuces in the vestibule from Messrs. J. Carter and Co., High Holborn.

FLORAL COMMITTEE.

Dr. Denny in the Chair.

This Committee had a large number of new and beautiful plants submitted to their attention, and that the exhibits possessed considerable merit may be judged from the number of first-class certificates awarded. Messrs. J. Veitch and Sons, Chelsea, had a fine group of Tuberous Begonias, Orchids, and new plants. Some of the most noticeable Begonias were the dwarf forms. Mrs. Arthur Potts with rich crimson flowers; B. Davisi with neat bright scarlet flowers. Of the larger varieties Brilliant with enormous scarlet flowers; Le Géant, also with large blooms; Emperor, Monarch, the pretty white form Reine Blanche; several named seedlings, Rosea grandiflora, and Countess of Kingston described below. An exceptionally beautiful collection of Japanese Irises was also exhibited which were greatly admired. The varieties were not of English origin, having all been introduced from Japan by Messrs. Veitch; the diversity and beauty of the colouring were most attractive. Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, sent a group of Orchids, among which was a grand specimen of Grammatophyllum Ellisii, with a raceme considerably over 2 feet in length and bearing nearly fifty of its peculiar brownish flowers with small yellowish spots. Nanodes Medusæ had several of its strange dull reddish coloured flowers with large fringed labellums; the delicate and elegant Ionopsis paniculata was flowering freely; Utricularia Endresii also being represented by an attractive specimen. Cultural commendations were awarded for these plants. Mr. H. Coppin, Rose Nurseries, Shirley, Croydon, obtained a vote of thanks for a group of Tuberous Begonias, containing several well grown and finely flowered specimens, also four boxes of cut Roses fresh and good. Mr. H. Cannell, Swanley, Kent, had a large stand of Verbenas, a number of varieties being represented, many of considerable beauty. A medal was awarded. Captain Patton, Langford Place, Abbey Road, N. (gardener, Mr. Borthwick), sent a Coleus named Allan Chandler, with leaves of great size, crimson marked with maroon, and edged with yellow and green, very bright in colour, a good variety, but with some others also exhibited on this occasion it was not considered sufficiently distinct from the numerous forms in cultivation to merit a certificate. Messrs. Heath and Son, Exotic Nursery, Cheltenham, were accorded a vote of thanks for a plant of Epidendrum elatum bearing a fine panicle of flowers, the fragrance of which strongly resembles that of ripe Pears. Mr. C. J. Salter, gardener to G. Southgate, Esq., Selborne, Streatham, was accorded a vote of thanks for a basket of plants of Phalænopsis grandiflora, bearing a large number of fine flowers; one inflorescence had sixteen flowers, and others from eight to ten. Mr. Salter also sent a basket of Oncidiums of several species flowering freely. From the Society's garden were sent several of Lemoine's Pelargoniums, also a group of seedling Begonias of especial merit, the habit being good, the flowers large and richly coloured. As arranged with pots of Mignonette the effect was very pleasing. Plants of Gomphrena globosa nana were also shown; as its name signifies, it differs from the ordinary form in the dwarf and compact habit. A vote of thanks was accorded to G. F. Wilson, Esq., F.R.S., Weybridge, for flowers of Lilium, including L. pardalinum, L. californicum, and a seedling. Messrs. Cutbush and Son, Highgate, had a collection of Ivies in the vestibule comprising about fifty varieties, several of considerable beauty.

First-class certificates were awarded for the following plants:—To Mr. Coppin for a seedling named *Tuberous Begonia Mrs. H. Coppin*, a very distinct variety, with very large yellow flowers of good form; the leaves were somewhat of the Pearcei type in colouring, but very large, some being about 10 or 12 inches in length. The habit was compact and good, and the variety appears to be one of great excellence. To Messrs. Veitch and Son for *Tuberous Begonia Rosea grandiflora*, a beautiful variety, with flowers of enormous size, about 4 to 5 inches in diameter, of neat form, and pale pink in colour, very distinct and attractive; *Cypripedium Morganianum*, a hybrid between C. Stonei and C. Veitchi, with narrow petals about 4 inches in length, spotted with dark purple, the sepals were of a light colour faintly striped with purple; *Tuberous Begonia Countess of Kingston*, of dwarf habit, with large well-formed flowers of a rich crimson tint. In the colour and symmetry of the flowers this fine variety could scarcely be surpassed. The following varieties of *Iris Kæmpferi* were also deservedly certificated—*Carnation*, very large flowers, peculiarly streaked with purple on a lighter ground; *Striata superba*, very neat symmetrical flowers with a pale lilac ground, marked with fine purple veins, and having purplish blue stigmas; *Imperial Wonder*, large circular flowers, spotted and streaked with white and two shades of purple; *Kosoburo San*, falls and standards broad and rounded, streaked and veined with purple on a light colour, very distinct and beautiful; *Delicata*, flowers of moderate size, semi-double, white in centre, lilac blue towards the margin, very chaste. To Mr. C. Turner, Slough, for *Rose Mrs. Harry Turner*, a Hybrid Perpetual with neat compact blooms of good substance and a surprising richness of colour. The shade was a deep rich crimson with a velvety sheen; very effective. *Picotee Clara Penson*, a light-edged variety of symmetrical form, full, pure white with a clear narrow margin of purple. To Mr. W. Bull for *Lilium canadense splendens*, a variety of this well-known species with a single neat flower of moderate size, the perianth divisions acute, reddish in colour, thickly spotted with black; very pretty and distinct. To Messrs. Cutbush and Osborn for *Hedera maderiensis*; an Ivy with small leaves variegated with white. To Mr. R. Lewis, St. Austins, South Norwood, for *Coleus Sowteri*, a distinct and attractive variety with neatly formed leaves, rich crimson in the centre, and margined with an even band of yellow. To Mr. J. King for *Begonia Mary Steele*, a tuberous variety of the Pearcei type, very floriferous, of good compact habit and bearing circular flowers of a fine yellow tint. *Tuberous Begonia A. Hemsley* from the Society's gardens at Chiswick was also honoured with a certificate. It was exhibited as a "decorative variety," a term which was apparently intended to indicate the dwarf compact habit and floriferousness of the variety. The flowers were very freely produced, and of a fine pink hue. Messrs. W. Paul and Son, Waltham Cross, also obtained a first-class certificate for *Rose Pride of Waltham*, which is described in the report of the Alexandra Palace Rose Show.

FRUIT COMMITTEE.

HENRY WEBB, Esq., in the Chair.

Fruit and vegetables were not quite so abundant as the plants and flowers, but several exhibitors staged collections deserving of notice. Mr. Lyon, gardener to Sir E. H. Scott, Sundridge Park, Bromley, Kent, exhibited dishes of fine Elruge Nectarines and Grosse Mignonne Peaches; the latter were very large, and a vote of thanks was accorded for them. Mr. Whitaker, gardener to Lord Crewe, sent dishes of Lord Napier Nectarines, for which a cultural commendation was awarded. The fruits were of good size and well ripened. From the Society's garden fruits of a hybrid Strawberry were sent, the hybrid being the result of a cross between Fragaria lucida and F. carolina. The fruits were rather small, but of a rich and peculiar flavour. It was characterised by the Committee as an interesting cross of good habit, abundant bearer, and novel flavour, but not of sufficient size or importance to merit a first-class certificate. Mr. Ward, Longford Castle Gardens, Salisbury, sent a seedling Melon, which was considered as a good ordinary Melon, but not superior to others in cultivation. Messrs. Bunyard and Co., Maidstone, sent small branches of Currants most profusely laden with fruits. The varieties were Raby Castle, Early Red, and Baldwin's Black. A vote of thanks was accorded. Mr. Pearson, 5 Water Lane, Brixton, sent fruits of a seedling Strawberry, very large but not in good condition. Mr. Hinds, Canforp Manor, Wimborne, sent a collection of vegetables, comprising very clean well-grown samples of Peas, Beans, Carrots, and Potatoes. The Committee signified their appreciation of the quality by awarding a cultural commendation. A bronze medal was awarded to Messrs. J. Carter and Co. for their great collection of Lettuces, which comprised over two hundred varieties, representing all the principal forms in cultivation.

SCIENTIFIC COMMITTEE.

Sir J. D. Hooker, K.C.S.I., in the Chair.

Fasciation.—Mr. W. G. Smith exhibited a curious example of fasciation in Chrysanthemum Leucanthemum, in which the solitary peduncle carried three closely adpressed flower-heads. The specimen was sent by Mr. Scrimshaw, The Gardens, Chatsworth.

Exobasidium vaccinii.—The same gentleman reported that the thickened, bloom-covered leaves of Vaccinium Vitis-idæa referred to him were infested with Exobasidium vaccinii, a fungus of doubtful affinity.

Destructive Action of Smoke on Trees.—Mr. Smith also exhibited four water-colour sketches illustrative of growing Conifers under difficulties, the difficulties being caused by the outpouring of volumes of dense smoke from a smelting furnace; and a life-size sketch of one of Mr. Noble's large plants of Lilium giganteum.

Trees Banked-up with Earth.—A conversation ensued as to this point, the gist of which was that some trees suffered less from having their trunks banked-up with earth than might have been anticipated. Some trees in the Euston Road were mentioned in illustration, as also Milton's Mulberry at Christ College, Cambridge.

Nitrification.—Reference was made by Dr. Gilbert to the presence of an organism acting as a ferment in the process of nitrification, and to the fact observed by Mr. Warrington in the Rothamsted laboratory, that certain solutions were observed to contain nitric, others nitrous acid. In some of the solutions vegetable organisms were observed, and the curious point was, that in those solutions in which the organisms were the nitrous acid had become further oxidised into nitric, while in those solutions where there were no organisms, the acid remained as nitrous acid. Dr. Masters stated that he had examined three of the solutions containing organisms. In the one case there were white flocculi, which on examination proved to consist of crystals around which a profusion of micrococci and a few hyphal threads were aggregated; in a second case mucilaginous films were seen floating in the liquid, and which when examined proved to consist of micrococci and bacteria in the zooglæa stage, together with numerous felted mycelial threads of extreme tenuity. In the third case there were brownish specks, which under the microscope were seen to consist of chains of ovoid cells, somewhat as in Spermosira. The specimens were referred to Dr. Cooke for further examination and report.

Simethis bicolor.—Dr. Masters exhibited a specimen of this plant from Dorsetshire. It is considered a doubtful native, but is not without geographical allies in the south-west corners of Ireland and England.

Sugar Cane Disease.—Mr. MacLachlan showed specimen of cane from Queensland in which the tissue of the cane was eaten away by the larva of a moth, which it was impossible to identify precisely in the absence of the perfect insect, but it was probably one of the Pieridæ, like that which does so much damage in Mauritius. Two remedies were suggested—one to pull up the canes and burn them, the other to strip off the lower leaves, and to destroy the eggs of the insect which are deposited in the axil of the leaf between it and the stem.

Habenaria radiata.—This charming terrestrial Orchid from Japan, with a spike of white flowers with fringed segments, received a Botanical Certificate.

Plants Shown.—Lilium medeoloides (?), Byrophyllum calycinum fol. var., Iberis amara, Cabbage leaves with pitchers, fasciated Ash, and, lastly, an instructive series of dried flowers of Oncidium Gardneri and O. curtum, showing every grade of transition between the two.

LECTURE.

At the afternoon meeting the Rev. G. Henslow, Secretary to the Scientific Committee, gave a brief lecture, the first group of plants to which he called attention being a fine series of Iris Kæmpferi from Japan, exhibited by Messrs. Veitch. The lecturer explained how the process of becoming double was being carried on, first by the three inner petals, usually small, being much enlarged and resembling the outer ones—an extra number of stamens appearing as small petals, and the style becoming more petaloid, so that, probably by continued cultivation, flowers resembling purple Pæonies might be expected to be produced. Mr. Henslow described the fertilisation of Iris and Crocus by insects (see *Gardeners' Chronicle*, vol. v., p. 505). The chief display of the day was made by Begonias, consisting of variations from hybrids between B. boliviensis, B. Veitchii, and other species. Allusion was made to the tendency to change the sex in Begonias; the stamens especially putting on stigmas while one specimen exhibited showed the pistil surrounded by stamens. The stems contain, probably, potassium oxalate, and are sometimes used instead of rhubarb; while the juice may be used like salts of lemon for extracting ink stains, only it is liable to leave an indelible red stain instead! A beautiful species of Utricularia and a hybrid Nepenthes furnished matter for a short account of the carnivorous habits of these genera. With regard to Orchids, a remarkable species of Nanodes, N. Medusæ, was alluded to, in which the labellum is adherent to the column. A fine Phalænopsis furnished an illustration of the fertilisation of Orchids by insects; the "caudicle" of the pollinia undergoes a remarkable contraction, so as to curve, while at the same time it is being depressed—the object being apparently to shorten the distance between the viscid disk and pollen, so as to hit the stigma more accurately and effectively. Gloxinias furnished an illustration of reversion, for it is presumable that all "irregular" flowers were originally regular, and have become irregular by adaptation to insect agency. Horticulturalists now "select" those with erect and regular flowers, thus "reverting" to an ancestral type. Pelargonia are remarkable for illustrating the fact that physiological differences are often more pronounced than morphological, for it is found that the forms with five well marked spots, one on each of the five petals, will not cross with those possessing only two spots with the other three wanting or only faintly represented.

EVENING FÊTE AT SOUTH KENSINGTON.

The Royal Horticultural Society held its annual evening fête at South Kensington on Wednesday the 21st inst., and being favoured with fine weather after a few showers in the early part of the evening, it proved highly successful, and a very large and distinguished company assembled to enjoy the numerous attractions provided. The east and west quadrants were occupied by numerous collections of plants, which appeared to exeellent advantage beneath the electric light. Of the plants thus contributed a large proportion were from the Society's garden at Chiswick, one group of Tuberous Begonias being particularly attractive. An extensive and imposing collection of plants were staged by Captain Patton in the east quadrant, comprising 150 varieties of Coleuses, some of them very handsome, arranged with Palms, Lilies, and miscellaneous fine-foliage plants. Another very attractive group was that from H. J. Atkinson, Esq., Gunnersbury House, Acton (gardener, Mr. Hudson), which contained some very handsome specimen Ferns, Crotons, Palms, and other plants effectively arranged. Mrs. Hudson contributed an elegant and pleasing example of table decoration, which found many admirers. Nurserymen also exhibited well, one of the principal groups being that from Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, which included a number of choice stove plants; Orchids, Palms, Nepenthes, Ferns, &c., being exceptionally well represented. The General Horticultural Company sent a large and beautiful group of Palms, Ferns, Gloxinias, and others, the central plant being a fine specimen of the beautifully variegated Phyllanthus nivosus. Messrs. Osborn and Son, Fulham, had a pleasing arragement of fine-foliage plants; and Mr. Aldous, South Kensington, exhibited a graceful mode of decorating a fire grate and mantelshelf. Messrs. Dick Radclyffe and Co., High Holborn, contributed a charming arrangement for a grotto; and Mr. Cannell, Swanley, staged a large collection of trusses of Verbenas representing more than 150 varieties, very bright and rich in colour.

The grounds were illuminated with Messrs. Siemens' electric light, which proved on this occasion exceptionally brilliant and steady, and upwards of eight thousand coloured lamps, which were arranged spirally up the stems of trees, in festoons from tree to tree, among the branches, and around the fountains, considerable taste being displayed in the arrangement. Coloured fires were employed at intervals, but owing to the stillness of the air the smoke somewhat marred the effect. In the conservatory the Kensington Amateur Choral Society sang an admirable selection of part songs, and on the terrace the bands of the Royal Horse Guards and the Life Guards contributed greatly to the pleasure of the visitors. Under the superintendence of the Secretary and members of the Council, Mr. Barron the Superintendent, and Mr. Dick the Assistant Secretary, carried out the arrangements with great efficiency; indeed in every respect this was probably the most successful meeting of the kind ever held by the Society.

JULY 27, 1880.

ORDINARY GENERAL MEETING.

Col. R. TREVOR CLARKE in the Chair.

Elections.—Sidney R. Brown, E. H. Cardwell, Henry Lee Corlett, George Deal, Miss Gowan, Captain T. Bridges Heathorn, R.A., Mrs. T.R. Hoare, Dr. Charles W. Pridham, Ernest William Rogers.

Medals Awarded.—Silver Banksian, T. Rivers and Son for 18 fruit trees in pots; Bronze Medal, S. Ford for a collection of Potatoes; Large Gold Medal, Capt. Patton for large group of Plants remaining on view 14 days; Silver Flora, C. Lee and Son for group of Hardy Evergreen shrubs; Silver Banksian, J. Carter and Co. for group of Balsams; Bronze Banksian, W. Rumsey for cut blooms of Roses.

The General Meeting was on the occasion rendered doubly attractive and interesting by the exhibition of Carnations and Picotees, and the British Bee-keepers' Association's Exhibition, which were held on the same day; but in addition to those attractions numerous plants and groups were submitted to the attention of the Committees. Not only was the Council-room occupied, but a large portion of the east quadrant was also filled with collections of plants notable either for their rarity, beauty, or fine healthy condition.

FLORAL COMMITTEE.

Dr. DENNY in the Chair.

The following were the most notable exhibits in the Council-room. Messrs. John Laing and Co., Forest Hill, sent a fine collection of Hollyhock blooms, including some remarkably handsome varieties; the blooms were of great size, full, and of good form. Mr. J. Chambers, Westlake Nursery, Isleworth, sent a collection of Lobelias and Ferns, young specimens of Asplenium viviparum being particularly attractive with their finely divided fronds bearing diminutive plants. Mr. G. Weedon, Ealing, staged a basket of a bedding Lobelia named Gem of the Season, dwarf and free, the colour of the flowers being a very bright blue. Mr. R. Dean, Ranelagh Road, Ealing, exhibited flowers of a double Stock named Mauve Beauty, very profusely flowered; also specimens of the double Mayweed, Matricaria inodora fl.-pl., and samples of two seedling Potatoes, The Alderman and Lord Mayor, both crosses obtained between Extra Early Vermont and Early Market. Messrs. Veitch, Chelsea, sent several new and beautiful plants, including a very attractive dwarf Tuberous Begonia with pendulous rich scarlet flowers; a white-flowered variety named Mrs. Sheppard, of considerable beauty; a variegated form of Lillium longiflorum; a plant each of Oncidium dasytyle; and a variety named aureum with bright yellow labellums. Messrs. William Paul and Son, Waltham Cross, sent a box of seedling Roses. Messrs. J. Carter and Co., High Holborn, exhibited plants of Tropæolum Chameleon, a dwarf compact variety with neat flowers marked with crimson and yellow, and several good Balsams. Mr. J. Smith, Tollington Nursery, Hornsey Road, sent two Fuchsias named President and Magnum Bonum, both having large flowers with purple corollas and scarlet calyxes. Messrs. Standish and Co., Royal Nursery, Ascot, staged specimens of a Phlox named Standish's Perfection, a fine variety with large white flowers in compact trusses. Mr. B. S. Williams sent several new plants, Cattleya Eldorado virginalis being particularly attractive. Mr. Stephen Brown, Weston-super-Mare, sent a collection of Coleuses; and cut flowers of Pentstemons were exhibited from the Society's garden at Chiswick. Messrs. T. Rivers and Son, Sawbridgeworth, sent about twenty fruit trees in pots, comprising Pears, Cherries, and Apples. One tree of Bigarreau Napoleon was remarkable for the fine crop it was bearing. A vote of thanks was accorded to W. A. Wallington, Esq., Trowbridge, for cut blooms of Carnations.

In the east quadrant, however, the principal collections of plants were staged, and by far the largest and most remarkable of all was that from Captain Patton of Abbey Road, which is referred to on p. cxxv under the report of the Royal Horticultural Society's Evening Fête.

The plants composing the group having been noted in the report referred to, it is needless to repeat them here, but the merit of the collection was justly recognized by the award of a large gold medal. The group remained on view until the Popular Show on August 2nd.

Messrs. James Carter and Co., High Holborn, exhibited a large collection of their Challenge Prize Balsams, which well indicated the excellence of the strain they possess. The majority of the plants were in 48-size pots, were a foot to 18 inches in height, and bearing a profusion of large blooms of good form and substance. The lilac, mauve, and purple shades were particularly well represented; white, flesh, pink, and scarlet were also remarkably fine. A silver Banksian medal was awarded. Messrs. Osborn and Son, Fulham, sent a neat collection of fine-foliaged plants in fresh healthy condition. The central plant was a vigorous specimen of Acalypha musaica, the foliage large and well coloured. In addition to such well-known elegant Palms as Areca Baueri, Kentia australis, K. Wendlandia, K. Canterburyana, and Cocos Weddelliana, small specimens of the dwarf and pretty Pandanus ornatus, Aralia Veitchii, and A. filicifolia were shown.

Messrs. Charles Lee and Son, Hammersmith, were awarded a silver Flora medal for a large and beautiful collection of ornamental shrubs and Conifers in pots. The specimens staged were mostly small, but well showed the distinctive habit and colouring of the different species and varieties. Some of the most noteworthy forms exhibited were the following:—Platanus californica, a very distinct species with enormous leaves more than a foot in diameter; Populus canadensis aurea, an elegant Poplar with neat golden-yellow leaves; Ulmus campestris variegata, a beautifully variegated Elm, the markings on the leaves somewhat resembling those in Ficus Parcelli; Castanea vesca alba marginata, an elegant variety of the English Chestnut with narrow leaves edged with an irregular band of white; Sambucus racemosus, remarkable for its large corymbs of small scarlet berries; Quercus atro-purpurea, a form with very dark purple flowers; Quercus Cerris elegantissima, a variety of the Turkey Oak with neatly variegated foliage; Acer campestris variegata, a charming little maple with small leaves freckled with white; Quercus filicifolia, a peculiar form with deeply divided leaves, the segments being irregularly linear; Æsculus laciniata was also remarkable for the narrow dark green peculiarly cut segments of the leaves; Quercus purpurascens had rich purple foliage, and many other beautiful forms were represented.

Mr. H. Cannell, Swanley, Kent, exhibited a beautiful collection of single Petunias, fine in form, and particularly rich in colour. The blooms, as seen in contrast with a carpeting of Fern fronds, appeared remarkably well. The collection was flanked by four plants of Achimenes longiflora major, with uncommonly large flowers; also a collection of African Marigolds. The little group was generally admired by the visitors. Mr. W. Rumsey, Waltham Cross, contributed seven boxes of neat and fresh-cut Roses, comprising a number of excellent varieties in very good condition. Some of the best were Leopold Premier (very neat and fresh), Madame Victor Verdier, John Stuart Mill, Dr. Andry, La Rosière, and an excellent dozen of Alfred Colomb—bright, of good form and substance. A bronze Banksian medal was awarded. Messrs. James Veitch and Sons, Chelsea, exhibited eighty blooms of border Carnations and Picotees grown at King's Road, Chelsea, comprising a large number of excellent varieties. Among the Carnations the most noticeable were Lord Chelmsford, R.F.; Sulphur King, yellow self; Crimson Pet, a rich crimson self; Purple Prince, fine purple self; and Mrs. Teigner, fine pink self. Of the Picotees Mrs. Rayner, rose, medium edge; and Lady Armstrong, a heavy red-edged variety with a yellow ground.

First-class certificates were awarded for the following plants:—

Lygodium palmatum (G. F. Wilson, Esq., F.R.S.).—A beautiful climbing Fern, which was stated to have been grown upon a rockery and unprotected for several winters. This is one of the most elegant and free-growing Lygodiums in cultivation, and proves of considerable value for training up pillars in greenhouses or conservatories.

Rose Duchess of Connaught (C. Noble, Bagshot).—A Hybrid Perpetual of rich crimson hue, neat form, and possessing a particularly powerful and agreeable fragrance.

Rose Mrs. Jowitt (Cranston and Co.).—A handsome Hybrid Perpetual, of symmetrical form, great substance, and a glowing rosy crimson colour. Very beautiful.

Macrostylis metallica (Veitch).—An attractive dwarf terrestrial Orchid, with neat foliage of a shining metallic deep brown colour, with a crenated margin. Very pretty for culture in pans on stages in stoves or Orchid houses.

Oleobachia palustris (Williams).—A graceful table plant with digitate leaves, the divisions being narrow and rich shining green in colour. The habit of the plant is compact and dwarf.

Iris Kœmpferi, vars. Crimson King and Magnificence (Veitch).—Both these varieties were of exceptional size and rich in colour, the former being particularly beautiful, the shade of crimson being intensely bright and clear.

FRUIT COMMITTEE.

John Lee, Esq., in the Chair.

Mr. Gilbert of Burghley Gardens, Stamford, sent a dish of Peas called Reading Nonesuch, which was recommended to be sent to Chiswick for trial. Mr. G. Weedon of Ealing sent some fruit of a Cucumber called Best of All, which has a strong resemblance to Tender and True. Mr. Sydney Ford, The Gardens, Leonardslee, Horsham, sent a Melon called Dellamore Hybrid, an oval green fruit, the flesh of which was tender and most delicious. It was awarded a first-class certificate. Mr. W. Kimpton, The Gardens, Smeeth Paddock, near Ashford, Kent, sent samples of a seedling Potato, which was recommended to be sent to Chiswick for trial. Messrs. James Carter and Co. sent fruit of their Cucumber Model, which is a useful variety, but was not considered superior to others in cultivation. Mr. John Maher, gardener to C. Allhausen, Esq., Stoke Court, Slough, sent a variety of Pea called The Queen, and a box of fine Violette Hâtive Peaches. To the latter a letter of thanks was awarded.

Mr. J. Wilson, Home Cottage, Enfield Highway, sent a seedling Currant raised from Raby Castle, to which it bears so close a resemblance that no difference could be distinguished between them. Mr. Pearson, Water Lane, Brixton, again exhibited his seedling Strawberry, but the flavour was so inferior that the Committee could not make any award to it. Messrs. Hooper and Co., Covent Garden, sent a Melon called Sirdar, which was not of sufficient merit.

Messrs. C. Lee and Son, Hammersmith, sent a basket of Henson's Seedling Gooseberry. This variety received a first-class certificate a few years ago, and still maintains the high opinion then formed of it. A letter of thanks was awarded. Mr. E. P. Dixon of Hull sent fruit of a new Raspberry derived from the Northumberland Fillbasket. It is a large handsome fruit, but not superior in flavour to other varieties in cultivation.

Messrs. Rivers and Son of Sawbridgeworth sent nine varieties of Cherries grown on pot trees in an orchard house; the finest of all was Early Rivers, a variety certificated by the Committee some years ago. Grosse Guigne Noire Luisante was also very fine. A letter of thanks was awarded for the collection. Messrs. Rivers also exhibited eighteen fruit trees in pots, which were so much admired for the excellence of their cultivation that a silver gilt Knightian medal was awarded. Mr. Stephen Castle, The Vineyard, King's Lynn, sent a collection of Tomatoes, to which a cultural commendation was awarded. Mr. Sydney Ford sent a collection of Potatoes consisting of forty-three varieties, to which a bronze medal was awarded.

SCIENTIFIC COMMITTEE.

Pyrethrum.—Mr. W. G. Smith exhibietd a specimen more or less fascicled and bearing a proliferous head—the so-called "hen and chickens," not uncommon in the Daisy.

Mr. Roberts, Penzance, forwarded specimens of the following rare British plants:—Chara fragifera (living), Allium Schœnoprasum var. sibiricum, Orobanche rubra, and Erica vagans (dried) from the Lizard, Cornwall.

Trifolium repens.—The Rev. G. Henslow exhibited a foliaceous and proliferous specimen and called attention to the fact that while the sepal-teeth grow out into petiolate leaves stipule-like processes appeared at the top of the calyx-tube between the petioles, seemingly proving that the tube is really receptacular and not of calycine origin.

Araucaria imbricata.—Mr. Fletcher of Ottershaw forwarded male cones of this plant.

LECTURE.

Mr. Cheshire being subsequently about to lecture on bees, the Rev. G. Henslow took the opportunity to speak principally on the fertilisation of flowers by them and other insects.

A basket of Tropæolums furnished illustration of strong "proterandry"—*i.e.*, the stamens, maturing first, rise up in front of the orifice to the spur and then retire on shedding the pollen. Subsequently the stigma matures and takes up the same position; hence such a flower is fertilised by pollen brought from a younger one. Fuchsias illustrated the old but false generalisation that, whether a flower be pendulous or erect, the stigma will be below the anthers, so that the pollen may fall upon it. Though such an arrangement is in the Fuchsia the flower is proterandrous, and therefore is not adapted to self-fertilisation. Moreover, when flowers are habitually self-fertilised the anthers are placed in close contact with the stigmas, as is the case with the "cleistogamous" buds of Violets. A group of Pentstemons furnished the case of a flower fertilised by bees, but which by means of the fifth (abortive) stamen standing over the nectary, afforded an obstruction to all insects whose proboscis could not reach to the bottom of the tube, and so would not be of any assistance in pollinating the flower. The structure of Abutilon, Malva sylvestris, and Salvia, was described as being especially adapted to insects in securing cross-fertilisation, while the cleistogamous Violets and Malva rotundifolia, &c., were self-fertilising.

The lecturer observed that all the varied beauty of flowers in nature was solely due to their being adapted to insects, whilst self-fertilising flowers were as a rule inconspicuous and unattractive.

A plant of Lygodium palmatum, exhibited by Mr. Wilson, illustrated the peculiarities of climbing stems or "twiners," and the lecturer suggested that as the property of bowing in a circular manner was not confined to climbers, for the apex of a Pine does the same, that it is probably a general phenomenon of plant growth, but specially utilised by plants with weak stems as a means of support.

This suggestion has since been fully confirmed by Mr. Darwin, who has shown in his work *The Movements of Plants* that many of them are but modifications of "Circumnutatia."

The following plants were certificated at Chiswick on July 20th.

BEGONIAS.

Dr. Denny.—Strong vigorous habit, very free-flowering. Flowers of medium size, well thrown above the foliage, very pale scarlet, approaching almost to a salmon.

Dr. Hogg.—Very strong growth. Stems pale green. Flowers well displayed, of a very bright scarlet, shaded towards centre with a pale hue. Very free-flowering and good.

Lucy Violet.—Vigorous habit, very free-flowering. Flowers of medium size, clear rosy pink, shaded towards the centre of the flower.

Anna Ria.—Strong vigorous growth, very free-flowering. Flowers of medium size, pale scarlet. Good.

Lizzie Smith.—Free vigorous growth. Flowers dark scarlet, with distinct magenta shade; round, medium size.

Henry Webb.—Strong vigorous habit, free-flowering. Flowers large and of good form, clear scarlet. Very good.

Annie Wilkie.—Strong habit. Stems pale green. Flowers large, pale scarlet, well thrown up. Very good.

Nellie Barron.—Very close compact habit, very free-flowering. Flowers erect, of a beautiful dark scarlet. Very fine.

Rosea Grandiflora.—Tall erect habit. Flowers very large, of good substance, beautiful rosy pink.

The certificates which had been previously awarded to the varieties Nellie May and A. Hemsley were on this occasion confirmed.

All the above varieties were raised in the Royal Horticultural Society's Gardens.

PELARGONIUMS.

Gloire d'Orleans (Lemoine).—Of dwarf close habit, very free-flowering, medium, erect-growing truss, beautiful magenta scarlet. The brightest coloured in the Ivy-leaved section.

Lucie Lemoine (Lemoine).—Show-decorative. Very dwarf close growth, very free-flowering. Flowers pure white, slightly pencilled at bottom of petals. The best white.

Mrs. Potten (Lemoine).—Show-Decorative. Free habit, free-flowering, white, slightly shaded; distinct purple blotch on upper petal. Very distinct and showy.

Madame Thibaut (Lemoine).—Show-Decorative. Free vigorous growth, very free-flowering. Large compact truss, white suffused with magenta; distinct, broad, and irregular rosy margin round petals. Very fine and showy.

Mont Blanc (Lemoine).—Ivy-leaved, white shaded pink, very free-flowering, large truss. Very fine.

Similar awards were also made to the two following plants on the same occasion:—

Gomphrena globosa nana compacta (Benary).—A very fine dwarf free-flowering form of the Globe Amaranth, from 9 to 12 inches high.

Oleander Professeur Duchartre (Huber).—Flowers purplish wine colour, beautiful shade, free-flowering and very showy. The darkest coloured of any.

AUGUST 10TH, 1880.

ORDINARY GENERAL MEETING.

DAVID WOOSTER, Esq., in the Chair.

Certificates in favour of the following Candidates for Election were read.—Frank R. Cheshire, Lieut.-Col. W. H. Moffat, Charles Oetzmann, Rev. Herbert R. Peel.

Medals Awarded.—Silver Banksian, Harrison Weir for Muscat Grapes; Bronze Banksian, J. Carter and Co. for a collection of Tomatoes.

The meeting of the above date, though not an unusually large one, was well attended by exhibitors. The tables in the Council-room were occupied with the various collections of plants and flowers, Messrs. Veitch's Lilies, Mr. Bull's new plants, Mr. Cannell's Cockscombs, Balsams, and Coleuses, and the Society's Tuberous Begonias forming the chief features of the display. Messrs. Carters' collection of Tomatoes in pots in the vestibule also attracted great attention, and Mr. Harrison Weir's Grapes were much admired.

FLORAL COMMITTEE.

James McIntosh, Esq., in the Chair.

Mr. H. Cannell of Swanley, Kent, was accorded a vote of thanks for large collections of plants of considerable merit. Cockscombs were represented by a number of handsome plants, very dwarf, with large finely arched heads. The colours were various and extremely rich, the shades of crimson and pink being especially noticeable. "Cannell's Perfection Balsams" were also bearing large flowers of good form and of many different shades. A number of Coleuses were shown, including several fine varieties. Mr. W. Bull, King's Road, Chelsea, contributed a group of new and handsome plants, among which the most noteworthy were Dieffenbachia Leopoldi, a distinct form with velvety deep green elliptical leaves, each with a prominent white midrib; the habit was compact. Geonoma princeps, an elegant pinnate-leaved Palm; Brunsvigia Josephinæ, an Amaryllid with a tall umbellate scape, bearing red flowers on long pedicels; Astrocaryum Malybo, a Palm with pinnate shining green leaves and broad pinnæ; Odontoglossum vexillarium rubrum, a deeply coloured form of that beautiful Orchid; Selaginella involvens variegata, a form of this tufted Selaginella with a few white branches; and Agapanthus umbellatus albus.

Messrs. J. Veitch and Sons, Chelsea, had a group of Liliums, including several beautiful forms of L. auratum, were especially notable. L. speciosum verum was very beautiful, the rosy crimson tint being very clear. L. tigrinum flore pleno had neatly formed flowers, and Lilium longiflorum albo-marginatum had large pure white flowers and leaves edged with white. The neat little

Angræcum Scottianum had several flowers. The pretty shrub Eucryphia pinnatifolia was also represented by flowering sprays. Mr. J. Walker, Thame, Oxon, sent a number of flowers of Dahlias, large, of excellent form, and comprising some distinct and handsome varieties. A vote of thanks was accorded. Mr. Charles Turner, Slough, exhibited about eight dozen blooms of Carnations and Piccotees in very fine condition, and including a large number of handsome varieties. A pale primrose-coloured self variety named Lady Rosebery was very attractive.

From the Society's garden at Chiswick were sent a collection of plants of Begonia ascotensis, some of which had been grown indoors and the others outside. The flowers of the latter were rather darker in colour, and the leaves were smaller than the others, but the plants were nearly equally floriferous. A large group of handsome Tuberous Begonias was also contributed, the flowers being very large and the colours bright; also double Pelargoniums and Pentstemons. Messrs. Daniells Bros., Norwich, sent flowers of Godetia Flag of Truce and Lady Albemarle, the latter of a bright rosy crimson tinge, and the former white. The General Horticultural Society sent a collection of handsome Zinnia blooms, very bright in colour and symmetrical in form. A vote of thanks was accorded. Mr. R. Gray, gardener to the Earl of Stanhope, Chevening Park, Kent, was accorded a vote of thanks for blooms of seedling Begonias, very bright in colour. Mr. J. King, gardener to G. Simpson, Esq., Wray Park, Reigate; and Mr. A. Eckford, gardener to Dr. Sankey, Sandywell Park, Cheltenham, contributed a number of Begonias and Coleuses. Mr. Solloway, Beaconsfield, Davenport, Stockport, sent flowers of a rich purplish blue seedling Viola. Robert Warner, Esq., Broomfield, Chelmsford, exhibited a plant of Cypripedium Warneri, a cross between C. Schlimii and C. Sedeni; the flower was of moderate size of a rosy colour.

Some extraordinary fine flowers of Lapageria rosea and alba were exhibited by Titus Salt, Esq., Milner Field, Bingley, Yorkshire (gardener Mr. C. Anderson). Not only were the individual blooms of great size and excellent form, but they were borne in unusually large numbers; in some instances as many as a dozen flowers were produced at one node. These superb examples were greatly admired, and the Committee accorded a vote of thanks and a cultural commendation. Messrs. F. and A. Smith, Dulwich, exhibited a collection of Balsams that were bearing remarkably well-formed flowers. The strain was commended. First-class certificates were awarded for the following plants—

Eucryphia pinnatifolia (Veitch).—An attractive Chillian shrub with shining pinnate leaves and serrate margin. The flowers are borne in the axils of the leaves, usually two at the apex of the shoot. The petals are broad, roundish, and white, the centre of the flower being occupied with numerous stamens somewhat in the style of the Hypericums. The flowers possess an agreeable fragrance and bear some resemblance to the Mock Orange. It is quite hardy in the Coombe Wood Nurseries, where it thrives freely.

Lilium speciosum gloriosoides (Veitch).—Flower of moderate size; divisions narrow, reflexed, half white, the lower portion near the centre of the flower spotted with red. Very distinct and pretty.

Lilium auratum virginale (Veitch).—A lovely variety of this handsome Lily with large flowers, white, with a clear yellow band down the centre of each division.

Lilium auratum platyphyllum(Veitch).—A variety with enormous flowers, 9 or 10 inches in diameter, the divisions about 4 inches across, slightly spotted, and marked with yellow in the centre.

Begonia Mrs. Sheppard (Veitch).—A tuberous variety with large white flowers, and moderately compact in habit.

Picotee Alice (Turner).—A pale yellow ground variety, slightly streaked with reddish crimson; the blooms of good form and substance.

Picotee Ne Plus Ultra (Turner).—Also a yellow ground form, with a reddish streaked edge.

Coleus Pompadour (King).—A very distinct and peculiar variety with deeply crenated leaves, marbled, spotted and streaked with crimson, pink, green, and yellow.

Hypolepis millefolium (G. F. Wilson, F.R.S.).—A second-class certificate was awarded for this elegant New Zealand Fern, which Mr. Wilson has found quite hardy at Weybridge. It has been out in the rockery for the last two or three years, and not protected in any way. Its finely divided foliage renders it particularly attractive.

LECTURES.

During the afternoon Professor G. Henslow delivered a short lecture upon the plants exhibited. He commenced by referring to a fine group of Lilies introduced by Mr. C. Maries, collector for Messrs. Veitch in Japan. It included a Lilium auratum var. platyphyllum, with a very large blossom but with the foliage of L. speciosum, from which L. auratum is usually very distinct in having narrow leaves. Several fine plants of L. auratum var. virginale (considered the same as var. Wittei by Mr. Elwes), and a new variety of L. speciosum named gloriosoides by Mr. Baker, having strongly incurved petals, were also noticed. The lecturer referred to Mr. Tillery's experience in the difficulty of raising intermediate hybrids—the seedlings of L. speciosum crossed by L. auratum or *vice versâ*—in either case being almost the same as the female parent. The great development of the tubercular epidermal processes in some species afforded an illustration of a method of hindering crawling insects from extracting honey, which would not be of service to the plant in not pollinating it. Eucryphia pinnatifolia, of which some fine blossoms were exhibited by Messrs. Veitch, is one of four species, two being natives of Chili and two of Tasmania. This diversity of habitat, like the Fuchsias of New Zealand and South America, appears to indicate a former union between South America and those islands long since severed, but still retaining certain species, which indicates their former continuity. A fine series of Coleuses sent by Mr. Cannell, and a variegated Croton from Mr. Bull, furnished material for remarks on variegation, and the lecturer suggested that possibly variegation may be referred to two distinct conditions. In the case of white or yellowish foliage it was found to be by Prof. Church an arrested state resembling almost colourless seedlings, and even a similar state to colourless parasites, so that every uncoloured cell might be almost regarded as parasitically attached to its neighbouring green cell. Brightly coloured foliage, however, was a different state, for the colouring matter was (not like green chlorophyl) in the epidermis, as it is in petals, so that the Coleus had, as it were, a transposition of colour from its proper locality into the leaves. Moreover, green chlorophyl was often present, but concealed below the purple.

A group of Celosia cristata or Cockscombs called for the remark that it was often impossible to distinguish between a "monster" and a "variety." This plant was in a fasciated condition, usually regarded as a fusion of several stems into one, as may be often seen in Asparagus and in boughs of the Ash tree. A certain group of plants from South America (Podostemaceæ) have species where the stem seems to be normally fasciated.

Mr. Frank R. Cheshire followed Prof. Henslow with a most instructive and entertaining lecture upon the structure of the bee in relation to gathering honey and pollen from blooms. By the aid of a number of clear and elaborate diagrams he demonstrated the general structure of the insect in a concise and intelligible manner, the mouth and tongue being carefully explained. The eye was also fully discussed and illustrated. The importance of the markings and colours of the corollas as guides and attractions to the bee in its search for honey was referred to at length, and many other interesting facts were discussed. A unanimous vote of thanks to the lecturer concluded the meeting.

FRUIT COMMITTEE.

John Lee, Esq., in the Chair.

The exhibits before this Committee were not very numerous. Mr. J. Walker, Thame, Oxford, sent a specimen plant of a new selected Pea, an extremely prolific variety. On a space of about 12 square feet the plant was bearing 306 pods, many flowers also being open at the same time. It was recommended to be sent to Chiswick. Mr. Reuben Fowler, Bedale, sent a dish of Peas, a variety with very large pods, but found to be deficient in flavour and sugar. Mr. Gray, gardener to C. Seely, Esq., Brooke, Isle of Wight, exhibited a dish of Apples, very handsome in appearance but deficient in flavour. Letters of thanks were accorded to Messrs. Charles Lee and Son, Hammersmith, for fruits of Henson's Seedling Gooseberry, and to Mr. C. Lee, Hounslow, for a dish of Vicomtesse Hericart de Thury Strawberries. Mr. Harrison Weir, Weirleigh, sent bunches of Champion Muscat, Venn's Muscat, and Madresfield Court Muscat Grapes, remarkably well grown, the bunches and berries large and finely coloured. A silver medal was awarded. Mr. C. Turner, Slough, contributed examples of Potato Early Bird, a handsome variety that is to be sent to Chiswick for trial. Messrs. Carter and Co., High Holborn, exhibited a collection of Tomatoes in pots. About fifteen varieties were represented, including the small-fruited varieties such as Red Currant and Cherry, as well as the large forms. A bronze medal was awarded for this very interesting group. Mr. McIndoe, The Gardens, Hutton Hall, Guisborough, sent a fruit of Mellon Marcellus, not of first-rate flavour but handsome. Mr. John Crossling, The Gardens, St. Fagan's Castle, Cardiff, also exhibited a Melon that was rather deficient in flavour. Messrs. Veitch and Sons, Chelsea, sent a number of plants of Seakale of the varieties Chiswick White and Lily White for comparison with the common form.

AUGUST 24, 1880.

ORDINARY GENERAL MEETING.

JOHN DENNY, Esq., M.D., in the Chair.

The following Candidates, whose certificates were read at the last General Meeting, were proposed for election, and on a show of hands being taken, were declared to be unanimously elected—viz. Frank R. Cheshire, Lieut.-Col. W. H. Moffat, Charles Oetzmann, Rev. Herbert R. Peel.

Medals Awarded.—Silver Gilt Flora, Kelway and Sons for a collection of Gladioli; Bronze Banksian, H. Boller for a collection of Cacti.

The chief features of this meeting were the Dahlias and Gladioluses, which alone constituted a brilliant display. Several other collections of plants were also exhibited, all more or less interesting, and the display was both bright and attractive.

FLORAL COMMITTEE.

DR. DENNY in the Chair.

Messrs. Kelway and Sons' (of Langport) collection of Gladioluses formed the chief feature of the meeting. About eighty spikes were staged, comprising a very large number of excellent varieties. A great diversity of colours were shown from pure white to the richest scarlet. The flowers were of great size and closely placed in the spikes. Some of the best varieties were the following:—Anthony Waterer, crimson, white streak; Dr. Woodman, pale salmon, purple tinge in lower petal; Antisthenes, fine scarlet; Opiter, crimson streaked margin, light centre; Ball of Fire, glowing scarlet; Queen Mary, white, fine, purple streak in lower petal; Calliophon, fine rosy pink streaks; and Mr. Derry, pale purple. They also exhibited seedling Dahlias and Asters. The Asters were represented by a number of large blooms, white, crimson, and purple being especially fine. A gilt Flora medal was awarded for the Gladiolus.

Messrs. Veitch and Son, Chelsea, sent a collection of Orchids and rare plants. The most noticeable were Aristolochia ringens, a species with neat, small, reniform leaves, and medium-sized flowers thickly veined and marked with dark maroon. Sigmatostalix radicans was a pretty dwarf Orchid with narrow grass-like leaves, and racemes of small flowers with pale green sepals and petals and white labellum. Oncidium ornithorhynchum album had panicles of white flowers with comparatively large yellow crests on the labellum. Dendrobium bigibbum superbum had neat flowers, pale purple, purplish crimson labellum. Zygopetalum Wendlandi, a species from Costa Rica, had a single flower with pale green sepals and petals, and a purplish labellum. Messrs. Veitch also sent about thirty immense trusses of Hydrangea paniculata grandiflora, which were especially remarkable for the large number of medium-sized white flowers crowded in the panicles. Some of the latter were about 10 inches in height and the same in diameter. Mr. B. S. Williams, Upper Holloway, sent a collection of new plants. Among these were a specimen of Mormodes pardina, with yellow flowers, the incurved petals and sepals being spotted with claret. The flowers are borne in a short raceme, and possess a peculiar drug-like odour. Lælia elegans prasiata was noteworthy for the rich purplish crimson of the lip, and the dull purple sepals and petals. Zygopetalum Gauteri had pretty flowers somewhat resembling Z. Mackayi.

Messrs. James Carter and Co., High Holborn, sent specimens of the Empress Cockscomb, with extremely large heads of a deep rich crimson colour. A vote of thanks was accorded for these plants, which we learn were grown by Mr. Bridgeman, gardener to T. Somers Cocks, Esq., Great Marlow. Messrs. Rawlings Bros., Romford, sent several new Dahlias, Sir Stafford Northcote being noticeable for its fine form, great depth, and regularity, the colour being bright scarlet. C. Harris was of excellent form, deep crimson maroon; and Shirley Hibberd similar, but darker in colour and rather rough. C. Sheffield was a neat flower, purple and white. Messrs. Keynes and Co., Salisbury, exhibited some very handsome Dahlias, of which James Vick, deep purple; Walter William, bright scarlet; Lady Wimborne, bright pink; Mr. Compton, purplish maroon; and Mr. Dodds, pale purple with lighter centre, were the best. Mr. Cullingford staged a collection of single Dahlias grown at Kensington, comprising many handsome scarlet, yellow and maroon varieties. Mr. H. Cannell, Swanley, Kent, exhibited cut flowers of Pyrethrums from plants that had previously flowered early in the season; Petunia Zinnias, Tigridias, and a single specimen of the fine Cactus Dahlia (D. Juarezii), all of which were in the fine condition that usually characterises the products from Swanley. Mr. A. Waterer, Knap Hill, Woking, sent flowers of Lilium Parkmanni, a handsome form with crimson spotted flowers. Mr. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, Derby, sent a plant of Stephanotis floribunda of the Elvaston variety, which was very profusely flowered. The strain was commended.

Mr. Charles Turner, Slough, exhibited a number of handsome Dahlias, of which several were honoured with first-class certificates. Show, Fancy, and Pompon varieties were well represented. A fine collection of Pompon Dahlias was sent from the Society's garden at Chiswick, a large number of handsome varieties being represented. A vote of thanks and a bronze Banksian medal was awarded to Mr. H. Boller, Kensal New Town, for a collection of Mamillarias and

Echinocactuses, Echinocactus scopia being fine. Messrs. Sutton and Sons, Reading, sent a collection of their new Hybrid Tuberous Begonias. A vote of thanks was accorded and the strain was commended.

First-class certificates were awarded for the following plants:—

Gladiolus Opiter (Keynes).—A very handsome variety. Large flowers, the tips and margins of the perianth division being streaked with crimson, the centre being lighter. *Aquinus.*—Rosy crimson, with a few dark streaks and spots. Flowers large; spike massive. *Anthony Waterer.*—Bright scarlet, with streaks down centre of division. Flowers neat; spike large. *Pilumnus.*—Enormous flower, white, with a very slight tinge of purple and a few streaks; a most delicate tint. *Calliophon.*—Streaked with bright rose, lighter centre, and lower division stained with yellow. *Phormis.*—Flower very large, streaked with two shades of crimson.

Dahlia Revival (Turner).—A handsome show variety of great symmetry, moderate size, great depth, and very deep scarlet. *Queen of Spain.*—A fine flower of a peculiar yellowish tinge, with a few purplish streaks. Very good form. *Goldfinder.*—A grand yellow variety of excellent form. Colour very bright and clear. *Dr. Ranch.*—A Pompon variety, very neat; the flower 1 or 1½ inch across, of a reddish tinge. *Professor Klug.*—Also a Pompon; pale pink. Very pretty. All the above, except the Pompon varieties, were raised by Mr. Fellowes.

Dahlia Lady Wimborne (Keynes).—A rich deep pale rose-coloured show variety; very clear and symmetrical. *James Vick.*—An admirable variety, deep purple, and very symmetrical. *Mr. Compton.*—An exceptionally handsome show variety, of excellent form, and deep purplish maroon in colour.

Lilium Parkmanni (Waterer).—A beautiful form with large flowers; the centre of the division very rich crimson, spotted with a darker shade, the margin being white.

Bolbophyllum Beccari.—A botanical commendation was awarded to Messrs. E. G. Henderson and Son, Maida Vale, for a specimen of this peculiar Orchid. It had enormous leaves, nearly a yard in length and over 2 feet in breadth, and was bearing a spike of small dull-coloured flowers, that possess a most offensive odour.

During the afternoon F. Cheshire, Esq., continued his lecture on bees, the subject then discussed being "The Modern Inventions which have for their Object the Assistance of Bees in Storing Honey in Purity for the Benefit of Man." The lecturer most entertainingly explained the construction of comb and the advantages of employing artificial foundations. The modern mode of extracting honey was also fully treated on, the superiority of the present system as compared with that formerly practised being illustrated at length. A vote of thanks was unanimously accorded to Mr. Cheshire at the conclusion of the highly interesting and instructive lecture.

FRUIT COMMITTEE.

HENRY WEBB, Esq., in the Chair.

Mr. W. Elphinston, Gardener to E. M. Mundy, Esq., Shipley Hall, Derby, was awarded a cultural commendation for three bunches of Golden Queen Grape weighing 12 lbs., and fairly ripened. From the Society's Garden at Chiswick fruits of Bergamotte Auguste Jurie Pear were sent, for which a first-class certificate was awarded as an early variety. Mr. G. Williams, gardener to C. Liddell, Esq., Pensmarsh Place, Sussex, sent six plants of Black Hamburgh Grapes in pots for table decoration. Each plant was bearing a bunch of well-coloured Grapes, one bunch being of great size. They were in 32-size pots. A cultural commendation was awarded. Mr. D. McLaurin, The Garden, Farnbro' Hill, sent samples of Hyde's Seedling Melon, which was characterised by the Committee as not so good as many in cultivation. Mr. W. Hinds, The Gardens, Canford Manor, Wimborne, sent a box of Improved Trophy Tomatoes, fine in form and colour. A Plum named John Powell from Mr. C. Turner of Slough was not considered superior to others in cultivation. Messrs. Thomas Rivers and Son, Sawbridgeworth, sent fruits of Dryden Nectarine, which were found rather tart in flavour. Mr. W. Iggulden, The Gardens, Orsett Hall, Romford, sent fruits of Tomato Trophy grown without fire heat. The fruits were of great size, excellently ripened, and well-coloured. Herr Ernst Benary, Erfurt, sent a dish of white Tomatoes. Mr. J. Woodbridge, The Gardens, Sion House, sent Alnwick Seedling Grapes, for which a letter of thanks was accorded. Mr. Elphinstone, Shipley Hall Gardens, sent fruits of the Melon "Luscious and Melting."

A collection of fruits of the Egg-plant was sent from Chiswick comprising thirteen varieties, white, purple, yellow, and scarlet. A collection of about one hundred Capsicums was also sent from Chiswick. A first-class certificate was awarded for a variety named Yellow of Nocerd, a peculiar three-lobed fruit.

Special prizes were offered by Messrs. Freeman and Freeman of Norwich for their Melon "Luscious and Melting," and their "Champion" Cucumber. In the former class M. J. Coomber, gardener to J. A. Rolls, Esq., M.P., Hendre Park, Monmouth, was awarded the prize for a well-ripened fruit. There were four entries in the class for Cucumbers, the successful exhibitor being Mr. C. Howe, Benham Park, Newbury, with two fruits, one 22 inches and the other 24 inches long, of admirable form and having fine bloom.

Messrs. Smith and Larke, florists, High Street, Kensington, sent a sample of Oats grown on a piece of very poor land to which a dressing of Clay's fertiliser had been applied at the rate of 3 cwt. per acre, no other manure having been put on the land for some years. The sample was of great weight, and a vote of thanks was accorded.

THE HYACINTH AND THE AMARYLLIS.

At the meeting of the Floral and Fruit Committees of the Royal Horticultural Society, March 23, there was a fine display of the show varieties of hyacinths and amaryllis, and Mr. Shirley Hibberd, at the invitation of the Council, gave a brief lecture on their history and characteristics.

Mr. Hibberd said the hyacinth was a comparatively modern flower; certainly less ancient as a florist's flower than the carnation, anemone, iris, tulip, narcissus, and lily. It is reported in the books that John Parkinson had above fifty varieties of hyacinths, but when we turn to the "Paradisus" we find that of the true oriental hyacinth, which alone of this class is the flower of the florist, Parkinson had but eight varieties, some of which in respect of their relationship to the hyacinth proper are certainly in a doubtful position. John Gerarde had about half a dozen, and amongst them a good double blue, which in Johnson's edition is admirably figured at page 114. Going back to Dodoens, we find that in 1550 this botanist of the Low Countries was acquainted with the oriental hyacinth, the flowers of which were of an excellent blue colour, and at page 206 of Lyte's translation of his "Historie of Plantes" will be found a figure showing that the hyacinth of that day was a poor thing, producing a few single flowers like those we are accustomed to see on offsets of a year old. It is remarkable, however, that the hyacinths of the older writers, however genuine as representing the oriental species, comprised only blue and purple varieties. The grand old masters, who produced books that put to the blush the puny productions of the modern horticultural press, were apparently ignorant of the glorious crimson and carmine and the delicate yellow coloured hyacinths that are now so much prized in displays of spring flowers. When these originated may be guessed at, but we shall probably never know to a year, or even to fifty years, when they first appeared, and those who discovered or raised them appear not to have bequeathed to us any records of their benevolent deeds. It is certain however that Holland was the first home in Europe of the oriental hyacinth, and to the plodding race of commercial florists who now supply us with bulbs the world is indebted for the creation of the hyacinth as a florist's flower. And it is pretty certain that they had it well in hand at the very time our fathers of horticultural literature were in the thick of their work, for Swertius, in his "Florilegium," as cited in Martin's edition of Miller, in the year 1620, figured forty varieties, and very scrupulously avoided representing anything so heterodox as a double flower. In Martin's Miller reference is made to Peter Voorhelm, who must have been in the flesh about the year 1680, as a great cultivator and raiser of new varieties, and the first to recognize, with a true florist's perception, the merits of the double flowers. It had been his rule to throw them out of his collection, but he was himself thrown out at last, and while on a sick bed a number of double seedlings took advantage of his absence to enjoy life in their own way, and thus they for a time at least escaped destruction. He had the good fortune to see one of these, and having kept it and increased it obtained good prices for the offsets, and that fine old stimulant, money, made him thenceforth a raiser of double hyacinths. The first-named variety of this class was called *Mary*. This appears to have been soon lost. It was followed by one called the *King of Great Britain*, which was so much in favour that the price of a root was a thousand florins. This price was soon doubled by the demand that arose, and thus at the end of the seventeenth century we have an instance of a hyacinth valued at about two hundred pounds. The tulip mania was at its height in 1634 and two years subsequently. It may be said to have come to an end with the celebrated declaration made at Amsterdam on the 24th of February, 1637, rendering speculative purchases null and void. At all events, the tulip had ceased to inspire the rapacity of gamblers and the eccentricities of madmen, and had left a lesson such as not even the recent run upon imaginary water stock is likely to confer upon the present generation. The hyacinth, therefore, which was then as it were forming itself for fame, was happily preserved from all taint of speculative trading, and the prices paid for scarce and beautiful varieties were simple testimonies of the esteem of amateurs for these new and attractive flowers. It is well for floriculture when prices rise to a point encouraging to systematic endeavour. To raise new flowers is a tedious and costly proceeding, however delightful it may be, and if the business is not seasoned with a moderate spice of the commercial element it is unlikely to acquire the full prportions of usefulness. As poets and painters and sculptors have been known to hanker after perishable riches, those humbler artists the florists must be permitted to desire the glimpse of a coin occasionally. In the case of the hyacinth we see clearly what happened as a consequence of the profit attending the production of new varieties. In 1768 was published at Amsterdam the Marquis de St. Simon's treatise, *Des Jacintes*, in which it is declared that the town of Haarlem was then environed with hyacinth farms, and the Dutch florists had named and described about 2,000 varieties of the fragrant flower.

I am not prepared to say how many acres of hyacinths might be found at Haarlem at the present time, but I can advise any lover of flowers who has not yet seen those flower farms to pay them a visit at the time when they are in their full glory, for they then constitute a spectacle not less unique than wonderful, so vast, so various, and so rich are the displays of colour, and so delicious the perfume diffused far beyond the range of the flowery fields. From the middle of April to the middle of May Haarlem is steeped in splendours that no dying dolphins could imitate, and the rich setting of the green meadows all around enhances the brightness, while adding to the completeness of the picture. To state the exact number of varieties now in cultivation is perhaps impossible. It probably does not exceed one thousand, and of these we might perhaps spare seven hundred or so without any serious loss. In the spring of 1873 I flowered at Stoke Newington a collection of 500 varieties, and found fully one-third of the whole number wanting the qualities that constitute average merit. A report of the trial will be found in the GARDENERS' MAGAZINE for 1873, and it would be out of place now to bring forward any of the minute details. But two interesting results of the trial may be mentioned. The mid-season flowers proved to be the best, and the blue and white varieties were in most cases superior in quality to the red. Thus it appears that in raising flowers by cross breeding we must expect to lose quality with every gain in departure from the normal type. As regards the distribution of merit, however, in connection with the season of flowering two very important facts were noted. The earliest flowers that appeared were of good quality, but those of the mid-season were better. But as the later kinds came into bloom we obtained an exhibition of the merest rubbish, and the later the sort the worse was its quality. Then, as the case stands at present, late-flowering hyacinths appear to be altogether undesirable.

Perhaps a few words should be said as to the cultivation of these charming flowers in Holland. The soil in which they are grown for market is sheer sand or blackish sandy peat, often of such a loose nature that the workmen attach flat boards to their boots to prevent their feet sinking into it. And so liable is the sand to be blown away that it is a common practice to scatter hyacinth flowers over vacant plots, for no man likes to see his estate fly through the air and settle within another man's boundaries. The land is usually prepared by dressing it heavily with manure from the cowsheds, and for this an almost fabulous price is paid. The land being ready and loaded with manure is planted with potatoes, and this crop being removed it is ready for planting with hyacinths. When a crop of hyacinths has been taken the land is planted with tulips, and the next crop may be tulips again or crocuses. Then the land is once more refreshed with a heavy dressing of cow manure and the rotation is repeated, beginning with potatoes.

The hyacinth takes us to the east, its home being the mysterious country known as the Levant. The amaryllis takes us to the west, the species that are most prized in our gardens being natives of the New World. But the examples of so-called amaryllis that have delighted us to-day are not amaryllis, but members of a genus called Hippeastrum, or equestrian star, one of the species being striped in a way to suggest the name. But our brethren the florists have never called them by Dean Herbert's name, and in this matter I shall stand by the florists, for the people who have to use a language should have some part in making and keeping it. It is only a case of conservative reaction and indicates the unchangeable inborn gallantry of the florists in preferring a heroine of Theocritus and Virgil to a fancy of a serious Churchman. But the classification of Dean Herbert has a sound scientific basis, and the hippeastrums stand apart as a section of amaryllis marked by unmistakeable characters. In respect of cultivation there are two matters of considerable importance to be mentioned. One is that the species of hippeastrum, all of them derived from the tropical zone of the Western Hemisphere, interbreed most freely, and hence the florist may find endless delight in raising new varieties, and the student of the origin of species may turn to them for the solution of problems, or to encounter fresh ones that he will never be able to answer. And another matter of importance is that these noble flowers are really difficult to manage, and consequently many fail before they learn the way to complete success. They rarely thrive in a peat soil, and they never thrive unless they are perfectly drained and watered judiciously. In common with many tropical plants, they can be brought into flower at almost any time; nevertheless, the spring is the best time to flower them, because they need a clear solar light to develop their splendid colours, and the subsequent summer heat favours the ripening of the bulbs.

THE DAFFODIL.

(Lecture delivered by Mr. Shirley Hibberd at the Royal Horticultural Society.)

The collective term Daffodil, which, in rural districts easily expanded into Daffadowndilly, was a corruption of Asphodel, the flower the ancient Greeks devoted to the dead. The old French form of the word was Affrodille, and the initial D attached itself as a proper remainder of the preposition in the French *fleur d'affrodille*

Daffodils are often referred to as Lilies, and one of our old English names for the large yellow trumpet section is Lent Lilies, which refers of course to their seasons of flowering. The poets have hailed them as among the most delightful flowers of the spring, prefiguring in their golden splendour the sunshine of the summer and the profusion of its fruits. Most fresh and fragrant are the allusions to them in the older poets, who have drawn their inspiration from the fields and woods. In Broome's "Daphnis" we read—

> "The joyous spring draws nigh! Ambrosial showers
> Unbind the earth, the earth unbinds the flowers,
> The flowers blow sweet, the Daffodils unfold
> The spreading glories of their blooming gold."

The Daffodils may be said to comprise the whole of the Narciss family, but John Parkinson warns us that there be true and false Daffodils, and at page 67 he gives the rule to distinguish them. "Now to cause you to vnderstand," he says, "the difference between a true Daffodille and a false is this, it consisteth only in the flower (when, as in all other parts, they cannot bee distinguished) and chiefly in the middle cup or chalice; for that we doe in a manner onely account those to bee Pseudonarcissos, bastard Daffodils, whose middle cup is altogether as long, and sometimes a little longer, than the outer leaves that doe encompasse it, so that it seemeth rather like a trunke or long nose, than a cup or chalice, such as almost all the Narcissi or true Daffodils have."

Thus the Narcissi are brought before us as Daffodils of two sorts, the true and the false, the classification so far resting on the relative length of the trumpet, cup, or crown to the sepals and petals, or, as we say to look learned, the perianth segments that encompass it.

The Narcissus takes its name from a blooming youth, son of Cephissus, who, being beloved by Echo and a crowd of nymphs, turned aside to make love to his own shadow in the fountain, and achieved immortality by meeting death in the sparkling stream. From his delicate corse sprang the beautiful flower which for ever wears around its heart a blood-stained girdle of remembrance. It is the fair white flower with ruddy annulus, known by distinction as the Poet's Narciss, or Narcissus poeticus, that represents the story, although Ovid, who gives it in detail in the third book of his "Metamorphoses," certainly does suggest that it might be a yellow flower, and a veritable Asphodel. But we must not be too particular about the flowers that figure in ancient fables, or we shall be soon lost in a maze of speculations. The best summary of the story I have met with is in the delightful "Historie of Plantes" by Rembertus Dodonæus, who, at page 211 of Lyte's translation, thus delivers himself:—"These flowers tooke their name of the noble youth Narcissus, who, being much desyred of many brave ladies, bycause of his passing beautie, he regarded them not; wherefore being desyrous to be deliuered fro their importunate sutes and requests, he went a hunting, and being thirstie came to a fountain, in which, when he would have dronken sawe his own fauour and passing beautie, the whiche before that time he had neuer seene, and thinking it had bene one of the amorus Ladyes that loued him, he was so rapt with the loue of himself, that he desyred to kisse and embrace himself, and when he cold not take hold of his owne shadow or figure, he dyed at last by extreme force of loue. In whose honour and perpetuall remembrance, the earth (as the Poetes fayne) brought forth this delectable and sweete smelling flower."

This brings us to the books, and there is no flower more famous in the books than the Daffodil. Dodoens describes four, and intimates his knowledge of other kinds, certain of which, he says, "whose garland or circle in the middle of the flowers is white, be very rare and daintie." In the great work of Gerarde, published 1597, there are fifteen true Daffodils described, and at page 136 he adds a few Pancratiums as Daffodils, which after all is not a great violation of propriety. In Johnson's edition of Gerarde, published 1633, there are thirty-one Daffodils described. In Parkinson's "Paradisus" the number mounts up to ninety-four, but a certain few of these—say half a dozen—are not Daffodils. So important to the collector of these flowers is this delightful old book that he considers the first requisite to perfect enjoyment of his pets is to commit to memory the forty-four folio pages devoted to them, and his next step towards happiness is to make the words fit to any tune that may be forced upon his hearing in a world where Daffodils are understanded only by a most select company of incurable madmen. I invite your attention and hope to win your admiration for a copy of John Parkinson, which I believe to be the most beautiful in existence, but being mad upon this subject perhaps I overrate its perfection. Amongst later writers on the subject, Salisbury, Haworth, and Herbert are full of importance, but I must commend to you the useful work of Mr. Burbidge on the Narcissus, published a few years since, as a storehouse of accurate information, illustrated with attractive and truthful pictures of about sixty of the most distinctive kinds.

There are in cultivation at least 150 named species and varieties of Narcissus, and Mr. Barr, one of the most active of the Narcissomaniacs, has an immense collection of seedlings for the enrichment of our collections, so that it may be safely said the next generation will have command of over two hundred varieties of these delighful, useful, seasonable, glorious flowers. And shall I tell you what will appear to many as a flight of fancy, but is in truth a sober but most interesting fact? Every one of these has a history! Yes, in every good garden of Daffodils there are two hundred histories represented by beautiful flowers; and the great garland, if we may call it such, is dotted and spangled and bound together with the experiences and speculations of curious students, experienced travellers, and enthusiasts of such irrepressible vitality that death alone is able to subdue them. And we may even suppose them after death carrying their love of God's work into the sunny prairies where the imperishable Asphodels expand their golden chalices filled with the waters of eternal life—where there is none of that contention about classification and nomenclature that results from our incapacity to understand the simplest flowers that bloom at our feet.

But these flowers, if we speak by comparison, are not so simple as they may appear. I will briefly direct your attention to one amongst a thousand problems they compel us to consider. You will observe that the centre of every true Narciss is occupied with a trumpet, a chalice, a cup, a saucer, a discus, call it what you will: the botanist calls it a crown or corona. Now, what is the corona? To this question no one living is competent to make reply; it seems as if Nature had crowned these flowers with the double purpose of exalting them and humbling the botanist. There are six divisions in the perianth, and these we may regard as consisting of three sepals embracing three petals. Then how comes the corona here? In some of the old books it is called the nectary, which is certainly not a bad guess, but it does not satisfy the severe morphologists. In the "Journal of Botany" for April 1865 will be found a learned paper on the subject by Dr. Maxwell Masters, who is inclined to regard the corona as the result of a combination of two rows of modified anthers. In the issue of the same work for May, 1866, is a paper on the subject by Mr. Worthington G. Smith, who regards the corona as the result of confluent petal-stipules. But the Narciss is by no means alone in its possession of a mysterious corona. Of the 110 genera of Amaryllids there are forty-two genera equally privileged, and we have peculiarly interesting examples in Pancratium, Ismene, Hymenocallis, and that exquisite Daffodil of the fertile fields watered by the mighty Amazon, the Eucharis amazonica, in which the faithful may behold the flowery emblem of the silvery chalice of the Lord's house, and Parkinson himself would have described it as he described the chalice of the incómparable Daffodil, saying, "The cup doth very well resemble the chalice that in former days with vs, and beyond the Seas is still vsed to hold the Sacramentall Wine." Nature has balanced the two hemispheres fairly with flowers of this kind, and if we suppose her object to be to prevent the disturbance of its equilibrium we shall perhaps be as near the truth as at the seeming end of the speculations of our ambitious but superficial philosophy.

Another and a very great problem the Daffodils propose to us is, How shall we classify them? The student may make choice of many systems or may frame one of his own; but a perfect system is not to be hoped for, Nature herself having sternly set her face against it. And the reason of this is that throughout the family the gradations of structure and proportion are so minute that from time to time our labours fail because we cannot discover dividing lines. It is the difficulty of defining distinctive characteristics that stands sheer in the way of scientific classification. Let us, for example, take the system founded on the relative length of the corona; a system contemplated by Parkinson in 1629 and adopted by Mr. Baker in 1869. Here we find two forms of the self-same species, Calathinus and Triandrus, put into separate classes, an error which admits of correction certainly, but for the present purpose serves to illustrate the problem before us. I have myself classified these plants according to the number of flowers produced on a stem, and the system is absolutely perfect, until—yes, until it breaks down in the presence of a plant that converts all my wisdom into foolishness by producing one or two flowers more than it ought. We know just enough to be kept in fear that Nature will some day shatter all our plans by putting the angles where the curves ought to be, and causing two and two to count as five. If we attempt to classify by colour, in order to evade the difficulties arising out of form, we are no better off. Take, for example, the Poet's Narciss, which should be single-flowered and white, with a sanguineous centre. What shall we say of Bicolor, which has two flowers and a yellow centre? And, again, what shall we say of Gracilis, which has two or even three flowers, and is wholly yellow? These two unmanageable beauties are so nearly allied to Poeticus that separation, which at the first blush appears easy, proves at last to be impossible. If the varieties in their delicate graditions bring the species near together, and thus perplex us, we are not the less perplexed by the variations of the varieties themselves. Take the double Telamonius for example. It is sometimes destitute of a corona, forming a closely-packed rosette; at other times it is double within the tube only, and occasionally it shows a perfect single flower. In its best state, when newly imported, it demonstrates the capabilities of its native Italian clime. In its worst state, as an old-established garden flower, it gives striking indications of the deficiencies of the subarctic clime to which it has been transported. There is a diminutive variety of the Poet's Narciss called Verbanensis. It was known to Parkinson, and is by him described at page 87 of the "Paradisus." He had not the least suspicion of its relation to poeticus, a relation discovered two hundred years afterwards, and you will find it properly placed at page 318 of the noble essay on Amaryllids of the Honourable and Reverend Dean Herbert. But this example is full of encouragement, because, if at the end of every two centuries a difficulty is disposed of, the whole catalogue of difficulties, which for the sake of argument we will estimate as numbering five hundred, will be all cleared off in a thousand years, and therefore the student of Daffodils is by no means tied up to a forlorn hope. The fact is we are perpetually endeavouring to catch Nature in a net and make her endless curves and inextricable windings conform to our narrow ideal geometry of straight lines and sharp angles. Our perceptions are finite, and Nature's capacity of production is infinite, and so in the search after knowledge we encounter difficulties at every step. I am reminded of a remarkable rockwork that I once admired with such demonstration of enthusiasm, that the artist who constructed it asked me what feature of the work pleased me most. I replied that the entire scheme in its completeness and unity gave me great delight, because it was utterly unlike anything in Nature, and in fact was an impossibility. "Ah," said he, "but my notions are my own; in my opinion that is how rocks should be formed; in these matters we have got beyond Nature." But the student of Daffodils will have to follow Nature, even if while toiling along the pleasant ways of truth he be always a thousand years in arrear of the knowledge that has never been concealed. Permit me to tell you another anecdote, which I think also illustrates the case of Verbanensis. There is a Daffodil described and figured by Parkinson as Pseudonarcissus anglicus flore-pleno, or "Gerarde's double Daffodil." For twenty years I sought and sighed to possess this plant, and in the season of Daffodils haunted gardens everywhere in search of it, but all in vain. But in the spring of 1875, while pottering about the garden making notes on Narcissi, I cast my eyes in a casual way upon the adjoining meadow, and at a considerable distance descried a tuft of yellow flowers. Calling the gardener, Tippets, I said, "William, go across the meadow and see what is that yellow flower yonder." "Oh," he said with perfect confidence, "no need to go; that's only a Dandelion." But my florist's eye, in "a fine frenzy rolling," was not so easily satisfied; so I went myself, and discovered in my own domain, where I thought I knew every weed as a member of my family, a fine clump of the veritable "Gerarde's double Daffodil," and I dug it up and brought it into the garden, and it lives and thrives to this day. Thus we may travel round the world in search of the very flowers that we left blooming on our own doorstep, for knowledge, like charity, begins at home.

Now, in conclusion, I will ask you why the Daffodils should so deeply interest us and fill so many big books? As a matter of course, as a learned lecturer, I must answer the question myself. It is not because of their beauty, or their hardiness, or their association with the opening spring. All these considerations contribute to their popularity because they contribute to their usefulness. The great secret of their hold on our affections is that they carry within their charmingly chiselled chalices not only the wine of a new life and a refreshment that is incapable of exhaustion—besides these passports to our affection, these flowers possess in a peculiar manner the interest of human life in their habitudes and histories. The story begins with the beautiful youth who is represented as ridiculously innocent, and it then runs through the hearts of many generations of philosophers, and comes to us at last loaded with grave questions the philosophers were gravelled by. Thus the blooming boy whom Death swallowed as the punishment of his vanity becomes a high priest for ever in the temple of Flora, and I conclude this hasty and fragmentary address by saying that, boy as he is, I as one of the learned elders desire now and here to pay respectful homage to his pretty name of Narcissus.

LECTURE ON THE PELARGONIUM.

By Shirley Hibberd.

The following is the text of the lecture delivered by Mr. Shirley Hibberd in the Council Chamber of the Royal Horticultural Society on the occasion of the Pelargonium Society's annual Exhibition, June 29th.

The Pelargonium affords a subject large enough to occupy as many hours, days, or even weeks, as the mere moments I shall devote to it on the present occasion. The plants on the table represent in part the beautiful collection of species and hybrids in possession of the Royal Horticultural Society, the management of which at Chiswick is all that can be desired. It is fortunate I am not bound to mention Geraniums, for, if they are of less importance than Pelargoniums they take us further back in time, and to do justice to them we should have to rummage amongst the old books and fish up some very curious memoranda. But the mention of the Geranium renders it necessary to begin with definitions. A Pelargonium is not a Geranium, although often so called. The true Geraniums are for the most part herbaceous plants inhabiting the northern hemisphere, and the Pelargoniums are for the most part shrubby or subshrubby plants of the southern hemisphere. Let us for a moment wander amongst the pleasant slopes of Darley Dale in Derbyshire, or by the banks of the Clyde or the Calder. We shall in either case be rewarded by seeing vast sheets of the lovely Meadow Crane's-bill, Geranium pratense, a true Geranium, and one of the sweetest flowers in the world. In the rocky recesses of Ashwood Dale, or on the banks of the "bonny Doon," we may chance to see in high summer a profusion of the Herb Robert, Geranium Robertianum, with pink flowers and purple leaves, a piece of true vegetable jewellery. And, once more, I invite you to an imaginary journey, and we will ride by rail from Furness to Whitehaven in order to behold on the railway bank, more especially near St. Bees, a wondrous display of the crimson Crane's-bill, Geranium sanguineum, which from July to September forms solid sheets, often of a furlong in length, of the most resplendent colour.

Now let us fly to the other side of the globe and alight in the vicinity of the Cape of Good Hope, say on the vast desert of Karroo, where there is much sand, much sunshine, and little rain. Here, in the midst of desolation, the world is rich with flowers, for the heathy scrub that occurs in patches, glowing with many bright hues, consists in part of wild Pelargoniums, which often take the form of miniature deciduous trees, although in the valleys nearer the coast, where more rain falls, they are evergreen bushes.

Very different in their characters are these two tribes of plants, and they are not less different in their constitution and aspects. We may regard the Geraniums as herbs of Europe, and the Pelargoniums as miniature trees of Africa. When we examine the flowers we find the five petals of a true Geranium of precisely the same shape and size; but the five petals of a Pelargonium are not so, for sometimes the two topmost are the largest and stand apart from the rest. The florists are doing their utmost to obliterate the irregularity of the petals of the Pelargonium, and in this respect to convert Pelargoniums into Geraniums, but the conversion will not be complete until much more wonderful things are accomplised. A Geranium has ten stamens, and a Pelargonium has only seven. These numbers are not constant, but the exceptions are of no consequence in a general statement of the case.

When all is said that can be said about the differences and resemblances of the several families of Geraniaceæ, there remains only one constant and unfailing test of a true Pelargonium, and that is the nectariferous tube immediately beneath the flower, and running down one side of the flower-stalk.

The best short summary of the history of the Pelargonium I have met with is in the *Gardener's Chronicle* of October 2, 1841. It gave me a clue that I wanted to the first-known Pelargonium as an inmate of an English garden. It speaks of one known to Gerarde, but there is no mention of it in the Gerarde of 1597. However, at page 948 of Johnson's Gerarde of 1633 is a record of a plant called Geranium indicum, "as of late brought into this kingdom by the industry of Mr. John Tradescant;" and the author adds, "I did see it in flower about the end of July, 1632, being the first time that it hath flowered with the owner thereof." The plant figured by Sweet as Pelargonium filipendulifolium (I., 85) is a variety of Pelargonium triste, which is identical with the Indian Geranium of Johnson's Gerarde. Thus we determine that the first flowering of a Pelargonium in this country occurred nearly 250 years ago.

Here it may be proper to remark that there are a few true Pelargoniums that are not natives of the Cape of Good Hope. P. canariensis is a native of the Canaries; P. australe comes from the Australian continent; P. cotyledonis is found wild in St. Helena; P. Endlicherianum is Asiatic and almost European. There are two or three species in Abyssinia. But P. triste is a Cape plant beyond a doubt, and it is most agreeable to know that our first Pelargonium was brought into the country by John Tradescant, of whom

Parkinson speaks as that worthy, curious, and dilligent searcher and preserver of all Nature's rarities and varieties. It was in all probability amongst the treasures acquired in his voyage to Barbary, in the fleet sent out against the Algerines in 1620. When, in 1629, he became gardener to Henrietta Maria, Queen of Charles I., this plant was in his famous collection at Lambeth, and was thence sent forth as the pioneer of the Pelargoniums and the Pelargonium Society. As the Cape was discovered in 1497, the plant had 123 years to complete the journey to the Mediterranean, and no doubt had the help of Portuguese traders in so doing.

It is singular that John Tradescant, who was an Englishman, born in Worcestershire, and probably of French extraction, was always regarded as a Dutchman. It is singular in this connection, because subsequent to his introduction of the first Cape Pelargonium, the Dutch were certainly the introducers of a dozen or more species that soon after came into Europe. In Dr. James Sherard's wonderful garden at Eltham, there were in 1732 half a dozen species. In the second edition of Miller, published 1733, there are twenty species of African "Geraniums," and these are all Cape Pelargoniums. This brings us to the publication by Linnæus of the "Genera Plantarum" in 1737, and the "Species Plantarum" in 1753, when the twenty-five species of Pelargoniums known to him were described as Geraniums for the last time in any work of high authority. In 1787 L'Heritier distinguished them by the signs I have already mentioned. In the "Hortus Kewensis," published in 1812, as many as 102 species and hybrids are described as then in cultivation at Kew, and the list includes triste, grossularoides, zonale, inquinans, lateripes, peltatum, grandiflorum, quercifolium, and fulgidum.

The splendid garden varieties of Pelargoniums that afford us so much delight are in a certain sense the creations of human skill. Nature never needed such things and did not trouble to produce them. They are the products of careful systematic hybridising and crossing, and they represent the talent and perseverance of the florists during a period of sixty-five years—a period so brief considering what has been accomplished that it shrinks to a moment when we compare the original wildings with the splendid flowers of this day. In the year

1815, or thereabouts, the amateurs began to cross the species and one of the leaders in this delightful work was Sir Richard Colt Hoare, who obtained a considerable number of beautiful hybrids. The work was taken up with more serious views by Mr. Robert Sweet, the author of a number of valuable illustrated works, comprising one in five volumes devoted to the Geraniaceæ.

The large-flowering or florists' Pelargoniums are reputed to be the offspring of P. speciosum. It must be evident to every cultivator of these flowers that the blood of a score or so of species is mingled in them. P. speciosum was introduced in 1794, but it has no place under this name in Sweet or the "Hortus Kewensis." It is variously described as producing purple and white flowers, and can scarcely be said to have a history. If the question be asked, What is Pelargonium speciosum? I must refer to Sweet's description of P. involucratum, No. 33. He there refers to speciosum of Andrews as identical with his own superbum, and he puts the speciosum of Wildenow out of court altogether. It is likely, I think, that P. spectabile (136), a hybrid raised from P. cucullatum and P. ignescens, and P. involucratum (33), raised from P. cucullatum and P. superbum, were the founders of the florists' race. Certain it is that these typical kinds were endowed with the capability of varying indefinitely, and with a plastic constitution rendering them possible sources of innumerable floral surprises. It is scarcely an exaggeration to say that amongst the true hybrids there are at least fifty that might be the parents of our exhibition race. But to clear up the point is impossible, for in very few instances did the early raisers keep any record that could be referred to for settling questions of pedigree.

The first variety figured as a proper florists' flower was called Geranium grandissima, raised by Mr. Widnall of Grantchester. The portrait of this variety appeared in the "Floricultural Cabinet" of September 1st, 1834. It was a pretty flower, with rich dark top petals and warm blush-tinted under petals; but the small size and poor form would exclude it from any collection of Pelargoniums in the present day. What a marvellous advance on this do we behold in the latest flowers of Mr. Hoyle or Mr. Foster! To Mr. Hoyle, no doubt, we must assign the gold medal as the producer by systematic crossing of the finest varieties of the present day.

The Zonal race acquired importance subsequently to the large-flowering section. Those we collectively term "Zonals" were grouped by Sweet under the generic designation Ciconium, and the most important of this genus are Ciconium zonale, introduced in 1710, and Ciconium inquinans, introduced in 1714. These are the two parents of the race, no doubt, but their differences do not account for the fact that in the garden varieties we have every imaginable variation of leafage and of bloom. It is likely that Ciconium reticulatum of Sweet (143), a very distinct hybrid, gave the first touch to the variegation of the leaves which has in recent years attained to such extraordinary development. In any case, this hybrid marks a distinct departure and appears well suited to be the founder of a race. The "Nosegay" section is the oldest of the Zonals. The founder of this section is Ciconium Fothergilli, the figure of which by Sweet (226) would nearly serve to represent a good Nosegay of the present day, and it may therefore be concluded that the Nosegays have been less modified than the Zonals that represent zonale and inquinans.

Another early section is that with green leaves and pink flowers of which we may consider Christine the modern type. This section is foreshadowed in Ciconium cerinum, which is admirably figured by Sweet (176). Here we have pubescent leaves and flowers of a soft rosy pink colour, the petals of which are beautifully rounded and nearly equal in size. Cultivators who remember Lucia rosea will have no difficulty in connecting the dwarf bedding Pelargoniums of the Christine class with this beautiful wax-flowered Pelargonium, which Sweet regarded as a true species.

The most famous of the Zonal section is the green-leaved scarlet bedder known as General Tom Thumb, a descendant of FrogmoreScarlet, and a competitor of Huntsman, Cooper's Scarlet, and many more which the General quickly vanquished from the field. This famous variety was raised by Mr. Willson, gardener to W. Pigott, Esq., of Dullingham House, Newmarket, about the year 1842. It is said that as a seedling it was condemned and handed over to some children to be tormented, and very soon found its way to a dust-bin. But by some accident it was dragged from the dust-bin and planted, and as the summer advanced it manifested its character, and secured its fame and many more admirers than Barnum's *protégé*. But many persons have some kind of claim to the honour of raising Tom Thumb, for there prevailed during some fifteen years—say from 1840 to 1855—a mania for raising scarlet Pelargoniums adapted for bedding; for those were the days of the horticultural scarlet fever, and many varieties nearly alike came forth from various quarters. Many of these passed for genuine Tom Thumbs, and many perhaps were quite as good. However, the original and true variety differed from most of the others in this respect, that it rarely ripened a seed unless it was artificially fertilised, when it was as prolific as any. This fact separates it far from Christine, which is an inveterate seeder. The leafage also puts them far asunder, for Tom has a smooth papery leaf of a yellowish green, and Christine has a thick soft leaf of a bluish green—one takes us back to inquinans, the other to cerifera, and Nature ordered the characters ages ago in the solitudes that stretch away drearilly to the west of Cape Town.

The pink-flowered Christine was raised by Mr. F. R. Kinghorn of Richmond in the year 1852. The parents were Ingram's Princess Royal and old pink Nosegay, which was formely much used for training on walls and pillars. The peculiar softness and blue tone of the leafage of Christine appear to be fully accounted for by the parentage, there being in it such evident traces of the Cerinum or Monstrosum of Sweet. Mr. Kinghorn, to whom I am indebted for its history, tells me that he very soon made note of its strong individuality, in which it seems to rise to the rank of a species, and reproduces itself freely and truly from seeds. During some fifteen years it was the most popular of all bedding plants, for it outran Tom Thumb at last. The beautiful Rose Queen, sent out in 1855, was one of the good things obtained by Mr. Kinghorn in the same batch with Christine. This has a higher quality, but never proved so good a bedder, and therefore never attained to great popularity.

It would be unfair to omit all mention of the variegated-leaved varieties, because in a good bedding display they contribute features fully as important as the strong colours. They tone down and harmonise and divide. In the year 1844 there were very few variegated Zonals known, and only one with bright scarlet flowers; this was called Lee's Variegated, and was very scarce. It was I think raised by Mr. Bailey, then gardener at Nuneham Park. Mr. Kinghorn selected this Lee's Variegated to supply pollen for a cross on the old Compactum, which was the seed parent, and in the first batch of seedlings from this cross he obtained the celebrated Cerise Unique, and the much more celebrated Flower of the Day, the most useful and most famous of all known variegated-leaved Zonals. Mr. Kinghorn to this day considers this was the greatest advance ever accomplished at one bound in work of this kind, and I thoroughly agree with him. The large seedling plant and two smaller plants of Flower of the Day were purchased by Messrs. Lee in August, 1849, and in August, 1850, they had a stock of 1500 plants of various sizes to offer for sale—a wonderful sight in those days, and one worth seeing even now.

It so happens that the last-named, most useful of all the silver-leaved varieties, conducts us direct to the fountain head of the whole race of the tricolors. In the year 1850 Mr. Kinghorn raised from Flower of the Day the beautiful variety known as Attraction, the leaf of which has a silvery margin and a dark zone, diffusing subdued rays of red and rich brown outwards upon the creamy band that girdles it. The Attraction was the first silver tricolor, and one of the parents of the first golden tricolor. Mr. Grieve, in his admirable History of Variegated Pelargoniums, tells that he fertilised a dark-zoned variety known as Cottage Maid with the pollen of Attraction. Amongst the seedlings occurred one that was the parent of the dark-zoned Emperor of the French, from which came the whole race of golden tricolors. From Cottage Maid and Golden Chain (the latter being the pollen parent) Mr. Grieve obtained Golden Tom Thumb, and from Emperor of the French and Golden Tom Thumb (the latter being pollen parent) he obtained Golden Pheasant, the first true golden tricolor. This same Emperor of the French, grandson of Attraction, produced by the pollen of Golden Pheasant the two most famous of the tricolors, Mrs. Pollock and Sunset.

The double Pelargoniums have had a career of fifty years at least. A handsome double purple, named Veitchianum, not of the zonal section, but allied to Barringtoni, was raised by the late Mr. J. Veitch at Exeter about the year 1828, and its portrait appears in Sweet's supplementary volume (81), where nearly next door to it is another double named Implicatum (86), which is as like the double cucullatum Mr. Cannell has been growing of late as can be expected of things that are probably different.

But the proper history of the doubles begins with Wilmore's Surprise, a handsome semi-double variety, which was described and figured in the *Gardeners' Chronicle* of August 17th, 1850. This was found by Mr. Wilmore of Strawberry Vale, Edgbaston, growing in the midst of a plantation of Hollyhocks, and so unaccustomed were the eyes of the florists to such a thing that it was considered to be a true hybrid between a Pelargonium and a Hollyhock. A remarkable fact in the history of this variety is that simultaneously with the finding of it in the garden at Edgbaston it was obtained by the late Mr. Beaton as a sport from Diadematum rubescens, and was by him named Monstrosum. The Edgbaston plant was shown by Messrs. Lee, of Hammersmith, at Regent's Park on the 30th of June, 1852, and Mr. Beaton suppresed his monstrosum in favour of it.

The double Zonals are of later date, one of the earliest being the crimson-scarlet Gloire de Nancy, which was first shown in this country in the year 1866. In the year 1869 there were seventeen double Zonals brought into public notice, and of other sections in that year the collective name was Legion. At this point of the story the subject becomes too large to be handled on the present occasion. It is quite certain that during the few years when Geraniums were everything and all other vegetables nothing in human estimation the heads of gardeners were so crammed with zones and margins, and trusses and pips and beds, that there was no room for anything else, and the phenomena of the tulipomania were reproduced in a newer fashion, and no one was fully aware of the fact that the world had gone mad on the subject of Pelargoniums.

Now that we can again survey the subject calmly it will be observed that two classes of Pelargoniums remain in full favour with the public. The large-flowered show varieties and the large-flowered single Zonals take the lead, and they are pleasantly followed by a crowd of Ivy-leaved, double-flowered and variegated sorts that are useful and beautiful, but no longer oppress us by their multitude and similarity. The Pelargonium Society has set up a severe standard of judging, and a variety must be distinct and good to pass through the sieve. Moreover, the raising of varieties has been to a great extent reduced to scientific principles, and we obtain as a result new characters suggestive of the great extent of the field that still lies open to the adventurous spirit in cross-breeding. No one in recent years has contributed more directly towards the scientific treatment of the subject than our painstaking Treasurer Dr. Denny, of whose labours I propose to present a hasty sketch.

Dr. Denny commenced the raising of Pelargoniums in the year 1866, having in view to ascertain the influence of parentage, and thus to estalish a rule for the selection of varieties for seed-bearing purposes. In raising varieties with variegated leaves, as also with distinct and handsome flowers, he found the pollen parent exercised the greatest influence on the offspring. The foundation of his strain of circular-flowered Zonals was obtained by fertilising the large starry flowers of Leonidas with pollen taken from the finely-formed flowers of Lord Derby. From 1871 to the present time Dr. Denny has sent out sixty varieties, and he has in the same period raised and flowered and destroyed about thirty thousand. These figures show that when the selection is severe, and nothing is allowed to pass that is not of the highest quality, there must be five hundred seedlings grown for the chance of obtaining one worth naming. The late Mr. John Salter used to say that it was needful to flower two thousand seedling Chrysanthemums for the chance of one worth naming. Therefore, if the comparison is of any value, it shows that raising Zonals is a very profitable business, the chances of success being four times greater than with Chrysanthemums. But Dr. Denny obtains more good things than he sends out, for he makes every year a selection of plants for seeding, and these amount to about 3 per cent. of the total number. It will be seen therefore that for every one sent out under name there are about fifteen equally good or nearly so, but for some reason or other they are not parted with, but are reserved to supply seed or pollen, and are then destroyed to make room for a new selection.

Amongst many interesting results of our friend's observations is one that strikingly confirms a suspicion that accompanies a study of Sweet's portraits — it is that some varieties assume the character and bearing of species, and by self-fertilisation reproduce themselves with peculiar exactitude. No one can doubt that many of the so-called species of plants, whether of Pelargoniums at the Cape or of Willows in England, are as truly hybrids as any that are raised in gardens. And this brings us to the question, What is a species? and the question suggests that if in treating this great subject I scarcely knew where to begin, I certainly know where to leave off. I confess I do not know what is a species—and so, thanking you for your kind attention, I now return to the golden silence.

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THE

REPORT

ON THE

ORCHID CONFERENCE,

HELD AT

SOUTH KENSINGTON,

On MAY 12th and 13th, 1885.

1886.

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PREFACE.

THE ORCHID CONFERENCE, organised by the Royal Horticultural Society, may be considered as one of the greatest successes ever known in Floral Exhibitions, and one, moreover, with a special object in view, every point in which was brought to the desired conclusion. There was an extensive and splendid show, lasting two days, and also a Conference, at which the attendance of Orchid growers was numerous and influential, and tended much to advance the objects of the Society, viz., to exhibit a representative collection of Orchids in flower, together with any other objects desirable for their culture, and to spread a knowledge of their habits and requirements.

In furtherance of these objects, interesting Papers were read and discussed, and much useful and valuable information elicited. The Exhibition was marked by a beautiful display of rare and showy Orchids, many of these being very large specimens; in fact, the greatest number of new and fine Orchids ever assembled at one show in this country were here displayed. It was also marked by the extraordinary facilities offered by the collection at one Exhibition of a great number of allied plants for comparing and estimating their distinguishing features; as an example of which may be mentioned the extraordinary representation of five specimens of nearly all the large white-flowered Cattleyas known—an occurrence hitherto unprecedented. Many other instances might be cited, but a perusal of the Report will give sufficient information on all points.

The Council of the Royal Horticultural Society, in publishing this Report, beg most heartily to thank all those who so kindly assisted them in bringing the Conference to such a successful issue, and they are much indebted to Dr. Hogg, of the *Journal of Horticulture*, for the woodcuts of the Orchids represented in these pages.

F. MASON,
Hon. Secretary, R. H. S.

SOUTH KENSINGTON,
January 4th, 1886.

CONTENTS.

PAGE
President's Address 11

Professor Reichenbach—
On Proliferous Roots of Orchids 18
,, Trilabellia Continua 19
,, Luddemannia (Cycnoches) Pescatorei.. 20

Mr. H. J. Veitch, F.L.S.—
On the Hybridisation of Orchids 22

Mr. James O'Brien—
On the Cultivation of Orchids 50
,, the Orchid House 53
,, the Staging 54
,, Watering Orchids 55
,, Potting Orchids 55
,, Materials for Potting 57
,, Shading and Heating 58
,, Arrangement of the Plants 59
,, the Cost of Orchids 61

Discussion on Orchid Nomenclature 62

Discussion on the Use of Manure in Orchid Growing 64

Report by F. W. Burbidge, Esq., F.L.S., on Plants Exhibited (Horticultural) 73

List of Genera, Species, Varieties, and Hybrids shown.. .. 75

Alphabetical List of the Genera of Orchids 94

Report by H. N. Ridley, Esq., M.A., F.L.S., on Plants Exhibited (Botanical) 139

THE CONFERENCE.

WEDNESDAY, MAY the 13th, 1885.

SIR TREVOR LAWRENCE, BART., M.P., in the Chair.

THE PRESIDENT, in opening the proceedings, said: The business before us to-day is of such a nature that it will take a considerable time to get through it, and therefore I think it is necessary to commence what we have to do at once. I think, ladies and gentlemen, I ought to apologise to you for making any introductory remarks. The Conference on Orchids, which we are now about to commence, has largely to do with the botanical and scientific aspect of the cultivation of Orchids, and I need hardly say that I should not venture to express any opinion whatever on matters of botanical science in connection with this subject. It is only as a horticulturalist that I have the honour to occupy the position that I now occupy, and therefore I must ask you to be so kind as not to suppose that I am in any way presuming or proposing to give any opinion on the botanical or scientific side of the question. I think you will one and all agree with me that the Royal Horticultural Society and the Conference Committee have every reason to be satisfied with the success which has attended the Conference. (Hear, hear.) I very much doubt whether such a collection of Orchids has ever been gathered together as that we have in the conservatory below, and I believe it would be impossible to gather together such a collection of orchids as is there displayed in any other part of the world. (Hear, hear.) The thanks of the Conference Committee are due to those amateurs who have helped them on this occasion, and also to those members of the trade who have done so, and on behalf of the Committee I beg to tender to them our very sincere thanks for the efforts and exertions they have made to make the Conference and its show a success.

The Royal Horticultural Society has for many years been under a debt of gratitude to members of the horticultural trade who have at all times supported it to their utmost ability, and who have largely contributed to this show, and to the interest connected with it. (Hear, hear.) Under the somewhat new aspect which the horticultural trade in the neighbourhood of London has assumed, several of the principal nurserymen are at the present moment very much occupied with shows of Orchids on their own premises, and therefore we could hardly expect them to denude their premises for two days of the principal attractions they possess. Therefore, while we are very considerably indebted to the horticultural trade for the help they have given us, there is no doubt that the great bulk of the show is made up of the contributions of amateurs round London. I hope, however, that on another occasion we may have help from amateurs all over the kingdom. We should very much like to see more of those magnificent Orchids, which a great many of us have heard of and some, perhaps, know, from the neighbourhood of Liverpool and Manchester, and I have reason to believe that the visitors who have come to the Conference from those parts are fired by a spirit of emulation, and will on another occasion do all they can to show that they can cultivate Orchids in the north of England as well as, if not better, than we can in the south. As regards the merits of the show, I think I may be allowed to quote the authority of no less a person than Sir Joseph Hooker. He expressed to me, and to other persons, his very great admiration for the show and his great appreciation of its value in promoting the cultivation of Orchids. Inasmuch as I think that Sir Joseph Hooker, like a great many persons who are devoted to scientific botany, is not, as a rule, very enthusiastic on behalf of shows, this testimony, coming from him, is of the more value. Referring to Kew Gardens, I think it is very much to be regretted that, mainly owing to the excessive economy with which money is given to that very valuable institution, there is no sufficiently representative collection of Orchids there at present. I believe the authorities at Kew are fully alive to the great interest that is taken in Orchid growing throughout the length and breadth of the kingdom, and we may hope that they will do their very utmost to ensure this result—that the collection of Orchids at Kew shall be equal to those of the other natural orders of plants. In fact, it would be very unwise that they should not do so, because it is very much the custom and fashion with gentlemen who possess collections, when they leave this world, to leave their collections to some public institution, and I do not see the least reason to doubt that, if there were to be found fine ranges of Orchid houses at Kew ready to receive plants, some wealthy bachelor would leave his collection to the public, as being perhaps, on the whole, his best heir.

With regard, ladies and gentlemen, to the absentees from the Conference, I am requested by Professor Reichenbach to express his very great regret that threats of an attack of pneumonia have prevented him being present here to-day. I know the reality of his regret, and I know he has been longing and most anxious to come here to see the skill which has been displayed, and the enterprise which has been shown, by English Orchid growers. He has been so kind as to send a paper, which I shall read to you, and he writes to say that, had he been here, he would have wished to be permitted to express his warmest thanks to English Orchidologists, and also to have paid a tribute to the memory of the late John Lindley. (Hear, hear.) In connection with the cultivation of Orchids and the science of Orchidology, there is no name which has a greater respect universally felt for it than that of the late Professor Lindley. (Hear, hear.) I think I am bound to say that, while in the absence of Professor Reichenbach we lose one of the greatest exponents of the scientific Orchidology, the loss is, I think, also a great one to him, for I am sure he would have thoroughly enjoyed seeing the collection here to-day. Then I also have a letter from Dr. Patterson, of the Bridge of Allan; he says: "I need not tell you how deeply interested I am in the objects of this the first Orchid Conference held, and I sincerely wish it success. Here I may say that for over half-a-century I have derived the greatest pleasure and instruction from the cultivation of these plants." Then among the gentlemen who would at all events have contributed to our show—and very remarkable contributions they would have been—we also very greatly regret the absence of Mr. Stevens and the plants which might have been sent from the Duke of Sutherland's, at Trentham.

More splendid specimens of the genus *Odontoglossum* are to be seen at Trentham than in any other part of the world. Now, ladies and gentlemen, I do not think anybody can walk round the show to-day without thoroughly understanding how we who are fond of Orchids come to be very enthusiastic about them. If you want to find a justification for the hobby, I would say walk once or twice round the show and you will find it. Whether you regard the splendour and richness of colouring, the delicate grace and beauty of the flowers, or the weird and fantastic characters of some of them, I think you will find a justification for, and will understand, the affection which Orchid growers have for their children. Many of the English Orchids are called after insects, and a great many foreign Orchids bear a striking resemblance to small creatures more or less allied to insects. Then in Orchids there is a most extraordinary variety; I do not suppose that in any family of plants there is anything approaching to the variety that Orchids display. There is another very remarkable circumstance, to which I believe there is some reference in the paper from Professor Reichenbach which I am going to read to you, and that is that in some cases you get what appear to be in all respects totally different flowers growing on the same plant. Again, most Orchids are epiphytes, and grow on trees, although there is a singular variety of growth among them. Some few, on the other hand, are in their habit more like plants in herbaceous borders. But I think the most singular circumstances connected with Orchids are the peculiar contrivances, on account of which it is hardly possible that they should become fertilized except by the intervention of insects or the hand of man. Nothing has been more remarkable than the rapid increase in our knowledge of this family. Looking back to the first volumes of the *Botanical Magazine*, which appeared in 1787, I find that in the first ten volumes, there were only two Orchids illustrated out of 360 plates; while if you look at the first ten volumes of the third series of the same magazine, which appeared between the years 1845 and 1854, you find that there are no less than one hundred different species of Orchids illustrated out of the same number of plates; and now, so far as possibility goes, it would be possible to fill almost every part of the *Botanical Magazine* with new species of Orchids if it were desired to do so. Indeed, I may say that I have occasionally, as a subscriber to that periodical, felt a little disposed to complain that we do not get a few more Orchids in it—(hear, hear)—and I sometimes think they might worthily replace some of the rather insignificant "foreign weeds with barbarous binomials" which are to be found there. I believe there are now hardly fewer than five thousand different species of Orchids known, and out of that number I should think there are close upon two thousand under cultivation. I can say with regard to one particular genus, the *Dendrobium*, that I have had in my own collection upwards of one hundred species under cultivation at the same time. There is another curious circumstance to be noted in connection with Orchids, and that is that I do not see, in the case of most of them, there is the least reason why they should ever die. The parts of the Orchideæ are annually reproduced in a great many instances, and there is really no reason why they should die, unless, as is generally the case with those in captivity, they are killed by errors in cultivation. I suppose it is quite possible to give plants, and especially Orchids, constitutional diseases such as human beings suffer from. I believe it is quite possible to give what answers to gouty affections and other such diseases to plants by injudicious diet, and by feeding them either too well or on improper food. There is yet another curious circumstance to which I will refer. I think the industry and research of collectors is making us better and better acquainted with the fact that in some of the principal *genera* of Orchids—in *Cattleya*, in *Dendrobium*, for example—there exist albinos, and that shows a little, I think, the contrariety of human nature. For, whereas, in these *genera* we search out and endeavour to secure the albino varieties, in others that are naturally white we endeavour to secure coloured varieties. Then with regard to the collecting of Orchids, in former years collectors were sent out by wealthy amateurs, gentlemen who wished to adorn their gardens with new plants and flowers; for instance, the Duke of Devonshire and the Duke of Northumberland, and other people occupying similar positions, and the Royal Horticultural Society did a great deal of very good work in employing very enterprising and skilful collectors. But all that, so far as private people are concerned, has come to an end, and I think, on the whole, it is to the advantage of the cultivation of Orchids that these matters should have passed into the hands of business people, who collect Orchids as a matter of commerce; and in referring to that for a moment, I think we should not do justice to the persons to whom we owe many beautiful *genera* and species of Orchids if we were not to pay some tribute to them. I would especially mention the firm of Hugh Low and Co., who have for many years past devoted their energies to this object, and who have expended much capital and enterprise in this direction. Then there are Messrs. Veitch and Sons, Messrs. B. S. Williams and Sons, Mr. Bull, Messrs. Backhouse, and last, but not least, Mr. Sander. These, among other firms, have in past years devoted a great deal of enterprise to this matter. I have got here a list of countries covered by the collectors of one firm only. It is a most comprehensive list, and includes the Argentine Republic, Borneo, Brazil, the Guianas, Ceylon, Costa Rica, Ecuador, Guatemala, British Honduras, British India, Upper Burmah, Jamaica, Java, Labuan, Madagascar, Mexico, the Celebes, Uruguay, Nicaragua, Panama, Penang, Malay Peninsula, Singapore, the Phillippines, Trinidad, San Salvador, the United States, Colombia and Venezuela. That list shows, at all events, that there has been no want of very wide travel in the collectors, and perhaps it may lead people to suppose that we have very nearly collected all the Orchids we are likely to get; but I do not think that is at all the case. In fact, with regard to one particular Orchid, one of the principal importers of plants (Mr. Sander) told me that his collectors had been searching for it for many years. Though it was known where it was growing, they could not find it; but, perhaps, some day it may turn up and be found growing in great profusion. I refer to the *Odontoglossum nævium majus*. There is one other incident I may mention with regard to the enterprise of collectors. You all know that Mr. imThurn and Mr. Perkins have lately made the ascent of Roraima, a mountain in British Guiana. Within a very few hours of their making that ascent, Dr. Seidl, collecting for Mr. Sander, also made the ascent, and when he got to the top a very great disappointment was experienced. It was supposed to be covered with forests in which there was also believed to be a very great variety of beautiful Orchids; but it was found to be very nearly bare, and violent rains had washed the soil completely away, and hardly anything was to be found except a fine bladder-wort, or *Utricularia*. It appears to me, too, that the public seem to take a great interest in Orchids. Anybody who is accustomed to attend auctions knows that every now and then foolish persons, like myself, are carried away by a momentary spirit of competition and give a great deal more for plants than in all probability they are worth. That is a weakness of all collectors, but what I should venture to say is this: that it never can be a very wise or judicious thing to give a large price for an imported Orchid, although it may be said to be extremely rare. Some collector may the next day send over a shipload of the same plant, so that a plant which to-day may be worth £10 or £50 would be only worth as many shillings to-morrow. I have known instances in which collectors have told pitiful tales of the privations that they have gone through in order to procure a particular plant. One collector was said to have waded up to his waist in mud for a fortnight before he found what he was looking for. But when persons desire to buy Orchids which have been raised by cross fertilization in this country, I think it is much more reasonable that they should give a considerable price for them. To begin with, they are the results of horticultural skill in this country and can never be imported from abroad; and when you consider the vast amount of careful labour and watching which is involved in raising seedling *Cattleyas* from the minute seed into a flowering state, I think you may fairly admit there is some ground why persons who have succeeded in raising them should think that they are entitled to charge a large price for them. I think I am correct in saying that the first *Cattleya* seedling raised in this country was seventeen years before it flowered, and during all that time it required very careful watching. But with regard to imported Orchids, I might instance, as examples of rarity and beauty combined, that at the present Conference, among the collections which are shown in the conservatory below, there are three very beautiful varieties of the *Odontoglossum crispum*, for which we are indebted to Baron Schröder; one of them suffused all over with a sort of port wine stain, another very richly spotted, and the third varying somewhat from them. I believe you might spend a lifetime in searching for, and might flower millions of plants before you would meet with three such varieties as these. Of course we all know that when you get any exceedingly rare and at the same time very beautiful species, it is naturally competed for on all sides, and if plants of that character are sold at a high price, I think there is full justification for it. I do not think I can detain you any longer. I am very much obliged to you for having listened to my remarks. I see that it has been suggested by Dr. Masters that these few remarks should be called an address, but as I am not so accustomed to make addresses as my friend Dr. Masters is, and as I have really never made anything but a political address, I venture to confine myself to the word "remarks," and I can only hope you will forgive their exceedingly discursive and not very interesting nature. ("No, no," and applause.) Now, ladies and gentlemen, the first business that we have to-day is to read the communication from Professor Reichenbach. This communication only arrived yesterday, and, as I have not had time to read it over beforehand, perhaps you will forgive me if I make any small mistakes. (Hear, hear.)

The President then read the following communication from Professor Reichenbach :—

I. On Proliferous Roots of Orchids.

There have been various records of buds originated on roots of Orchids, lately in the instances quoted by Messrs. Lendy and Salter.

I have long attached great interest to this case, though I have made but few observations, only one plant having often showed me this method of propagation. It is the Bird's-nest Orchid (*Neottia nidus avis*), which very often perishes after having flowered, while in other cases it produces fresh shoots from the axils of certain sheaths. In other cases it brings a fresh plant at the very top of a root fibre. I saw this in 1849, when I observed the fact at Tharand. I learned very late it had been observed before by J. P. E. Vaucher in 1841; after Vaucher and me it was seen by Irnisch, Prilleux, Hofmeister, who got it from me; then it was formally denied by Drude and re-observed and neatly described by Eugen Warming, the excellent Scandinavian botanist.

The second case was observed in my *Phalænopsis deliciosa*, gathered in 1843 by Zöllinger. My specimen shows a young plant on a root having just emitted such a small rootlet of its own as described by Mr. Salter. The specimen can be seen in my herbarium.

The third case is a sad one. A *Cyrtopodium* (if I remember rightly a Savannah plant from Venezuela) gave a fine shoot from a root in Consul Schiller's collection, under Mr. Schmidt's able management, I believe, in 1867. I watched it carefully. Finally a young assistant gardener broke it accidentally and threw the shoot and part of the root away, hoping the loss would never be remarked.

The last case is of *Saccolabium micranthum* (Lindl.). Director Lucien Linden sent me lately a fine Cochin Chinese plant, with a young two-leaved shoot on a root. The whole plant was boiled and carefully dried. It can be seen in my herbarium.

[The President here remarked that a fine specimen of *Phalænopsis Stuartiana*, showing this peculiarity of growth, had been contributed to the show by Mr. Macdonald, of Perth. The plant was brought from the conservatory for inspection.]

II. TRILABELLIA CONTINUA.

I had seen various cases of monstrous accidental *trilabellia interna*. In all those cases there were no anthers developed at all, and the genuine free style had a terminal upright stigmate, hollow, without the least pronation (deflexion).

The finest thing of this kind that ever came in my reach was a grand flower of *Oncidium Papilio*, with three lips, three sepals, and a fusiform apostasioid style, without the least indigitation of anthers or filaments. It was most kindly presented me by my excellent second eldest English correspondent, Mr. J. Day. I remember having seen a very fine Cattleyoid flower of that kind (if I remember rightly *Lælia elegans*) in the hands of Professor Thiselton Dyer.

All cases of that shape were accidental only, and I always, having missed the stamens as soon as there were apostasioid styles, adopted the view of an *Antagonismus*, the columna being reduced and partly made normal to pay the vast expense of the luxury of three lips.

There came, however, some instances to my mind, where the *trilabellia* occurs enclosing a common columna with its pronation and its normal anther. In these cases all the flowers were equally *trilabellia*, and this was observed once more on the next shoots of the same plant.

The first case was that one of *Oncidium prætextum Leeanum*. The Sanderian traveller, Mr. Osmer, was struck by a panicle loaded with such flowers, so that he made the unusual and keen attempt to dry them. They are now, thanks to Mr. Sander's liberality, at my side, eight in number. The plant itself came into the glorious collection of Mr. William Lee, where it produced identical flowers, eleven of which lay before me, thanks to the kind possessor, who will, I hope, watch his precious unique, telling us how long it lasts *trilabellia*.

The second case was observed by my highly-valued correspondent, Major Lendy, both in 1884 and 1885. It is not quite so evident as the just quoted *Oncidium*, inasmuch as the *Phalænopsis Stuartiana Lendyana* has but one normal lip, yet the petals approach lips much more than petals. The blunt triangular blades are unguiculate and bear a callus over the mid-base of the lamina.

The third case is that of *Dendrobium nobile Cooksonianum*, of Mr. Norman C. Cookson. The flowers are very distinct from the *D. nobile Tollianum*, having the petals very thick and hairy over the base, and enjoying the colours of the lip.

III. On Luddemannia (Cycnoches) Pescatorei.

This so-called "genus" has proved exceedingly troublesome. It was Schlim who discovered it near Ocaña; when there were fresh hunting grounds, Director Linden sent a plant to the late Pescatore, of La Celle de St. Cloud. There it has flowered. I think but one flower is preserved in Dr. Lindley's collection. I have four of that typical inflorescence. Dr. Lindley took it as a fresh *Cycnoches*, an opinion we have seen lately reaccepted by an author whose own principles should have prevented him from doing so, since both leaves and bulbs are those of an *Acineta* in our plant, while all *Cycnoches* have them like those of *Catasetum* and *Mormodes*. As soon as I had obtained both garden and wild-grown materials, I published my genus *Luddemannia*, in honour of my late friend Luddemann, who had flowered it.

Director Linden having got what formerly they called a great supply, let us say thirty plants, sent them to his correspondents, and got, by-the-bye, a certain *Stoicismus* in having to endure the most unfriendly letters of his customers, who accused him of sending *Acinetas* for *Cycnoches*, asking for the genuine plant. I believe Mr. Louis Schlim sent a second cargo, all of which flowered as *Acinetas*. I remember having seen Mr. Keferstein, of Kröllnitz, near Halle, quite savage about this, my *Acineta erythroxantha*, that had developed out of what he had paid for as a *Cycnoches*. In 1856, Director Linden, after having fully acknowledged Mr. Schlim's so-often-proved accuracy, told me all his bad experiences, finally adding, "Je n'y vois que de feu." As to poor

Schlim, who may have got "des lettres à cheval" from Mr. Linden, he expressed his sentence on a label I have, stating, "monstre d'un Peristeria." The case was nearly forgotten; almighty Time had washed away the bad impression.

The "genus" reappeared with Messrs. Veitch. A fine, rich plant was literally loaded with hanging young inflorescences, one of which had developed and appeared to be a fresh *Luddemannia*, showing fine marks of distinction. Messrs. Veitch were so very kind to let me have the plant. Unfortunately, all the inflorescences perished while travelling, notwithstanding the excellent packing of the firm, and when the plant flowered next year it showed me the abominable inflorescence of *Acineta erythroxantha*.

A quite distinct *Luddemanniana*, the third one, appeared with a stiff erect inflorescence and quite peculiar flowers. It was discovered January, 1874, by the late Wallis, who stated it had the bulb of an *Acineta* and a leaf of *Peristeria*. I am afraid Wallis made a mistake. Who might distinguish clearly the leaves of those *genera?* I would guess Wallis intended to write, it had the bulb of a *Peristeria*, and thus could be a sex of *Peristeria elata*.

Grand inflorescence of the old *Luddemannia Pescatorei* were collected and admirably dried for me by Mr. B. Roezl.

Finally, good plants of *Luddemanniana* were gathered by Messrs. E. Klabock and Lehmann, perhaps on the same spot. I am not sure who came first. The majestic likeness presented at the sale is well known. I was led to regard Mr. Lehmann's plant a new type, from his representation and description and the one dried inflorescence. The other inflorescence and two fresh ones proved to be the typical *L. Pescatorei*. I had the first from Consul Kienast Zölly, of Zurich, the other from an English benefactor, whose name will be, I hope, kindly supplied by Mr. Sander, who forwarded me the very well-grown, grand specimen. It is my ardent wish to have once more fresh statements of the pleiomorphic state of those flowers, which may be sexes of *Acineta*, perhaps also of *Peristeria*.

I have obtained well-developed seed from the *Acineta erythroxantha* produced from the *Luddemanniana* of Messrs. Veitch.

I hope much from that most skilful observer, Herr Consul Kienast Zölly, and from the English gentleman who had such fine flowers. I expect Director Linden, of Brussels, will feel a certain satisfaction in reading this note.

The President, on concluding the second head of Professor Reichenbach's paper, said: That is the end of the learned Professor's second communication, and I am reminded by it that in referring to the collectors of Orchids, I omitted to give sufficient credit to Mr. Sander, whose energy in this direction has been very remarkable. I believe Mr. Sander now employs thirteen collectors. He has given me very interesting details of the work they have done. Many of these gentlemen, who have very considerable botanical knowledge, are Germans, and in several instances such was their zeal that they lost their lives in the prosecution of their duties. From that it will be seen that the dangers and difficulties attaching to Orchid collecting are very considerable; it being well known, of course, that the climates in which researches have to be made are often very dangerous to European constitutions. Altogether the energy and enterprise displayed by Mr. Sander has been very remarkable.

At the conclusion of the third communication from the Professor, the President said that if any gentleman wished to make any remarks on the subject of these communications, this was the time to make them. No response, however, being made to his invitation, he continued: It is obviously very difficult to discuss the exceedingly intricate subjects dealt with in the paper which I have just read on the spur of the moment, and therefore I think the most appropriate course will be to ask Mr. Veitch to read his communication.

Mr. H. J. VEITCH, F.L.S., then read a Paper on

"THE HYBRIDISATION OF ORCHIDS."

He said: In a communication "On Hybridisation among Vegetables," by Dean Herbert, of Manchester, published in 1847, in the second volume of the *Journal of the Horticultural Society of London*, I find the following remarkable passage:—

"Cross-breeding amongst Orchidaceous plants would perhaps lead to very startling results; but, unfortunately, they are not easily raised from seed. I have, however, raised bletia, cattleya, *Herminium monorchis*, and *Ophrys aranifera* from seed; and if I were not, during the greater part of the year, absent from the place where my plants are deposited, I think I could succeed in obtaining crosses in that order. I had well-formed pods last spring of orchis by pollen of ophrys, as well as of other species of orchis which had been forced; and if I had remained on the spot, I think I should have obtained some cross-bred Orchidaceous seed. An intelligent gardener may do much for science by attempts of this kind, if he keeps accurate notes of what he attempts, and does not jump at immature conclusions."

This is the earliest authentic information I have been able to obtain of attempts to raise new forms among Orchids by cross-breeding, and with what success the Dean himself has told us in his own words. At that time, and for some years afterwards, there was a prevalent notion among gardeners that muling among Orchids was an impossibility, and, so far as I am aware, no one attempted it besides Dean Herbert till it was taken up by Dominy, at our Exeter nursery, about the year 1853. The cause of the prevalent belief of that age in the impossibility of hybridisation among Orchids is not, I think, far to seek.

Dean Herbert was a man of science, and was well acquainted with the structure of Orchid flowers; to him their fertilisation by hand presented no difficulty; to horticulturists and gardeners it was quite different. Not only had they, in common with many others, not the slightest suspicion of the fertilisation of Orchids by insect agency, but, moreover, very few of them possessed even an elementary knowledge of botany. They could, it is true, distinguish accurately the stamens and pistils of many flowers familiar to them, and they were aware of the functions of those organs, but the confluence of those organs into the solid column of an Orchid flower was to them a profound mystery. It was unfortunate, too, that Dean Herbert's injunction to keep accurate notes of what was attempted was not followed in the early days of Orchid hybridisation, whence the uncertainty that still hangs over the parentage of some of the earlier acquisitions.

It was Mr. John Harris, a surgeon, of Exeter, who suggested to Dominy the possibility of muling Orchids, and who pointed out to him the reproductive organs seated in the column, and showed that the application of the pollinia to the stigmatic surface was analagous to the dusting of the stigma of other flowers with pollen. This simple fact being once fairly grasped, the work of hybridisation proceeded apace. The flowers of showy species of cattleya, lælia, calanthe, &c., were fertilised with the pollinia of other species, and even the flowers of supposed different, but of course allied, genera, were also operated upon in the same way. Capsules were produced in abundance, which in due course proved their maturity by dehiscing, and thus the long and anxiously desired seed was at length at hand. Then arose a great difficulty, a difficulty which still exists, and which our long experience has enabled us to make only a short step towards overcoming, to discover the most suitable method of raising seedlings. The seeds of Orchids are minute chaffy bodies of extreme lightness. So minute are they that an ordinary pocket lens is powerless to enable one to know whether the seeds are likely to contain a germ or are mere lifeless dust. When growing wild, it is evident that the contents of the mature capsules after dehiscence are more or less scattered by the wind, perhaps wafted to great distances, until they settle on the branches of trees, on shelving rocks or other suitable situations where the seeds can germinate, and the seedlings firmly affix themselves. Following, or at least believing that we were following Nature, so far as the altered circumstances of artificial cultivation allowed, every method or available means that could be thought of was brought into request to secure the germination of the seed. It was sown upon blocks of wood, pieces of tree-fern stems, strips of cork, upon the moss that surfaced the pots of the growing plants, in fact, in any situation that seemed to promise favourable results. But as it was in the early days of Orchid hybridisation, so it is now, we seem as far off as ever from hitting upon a method by which at least a moderate amount of success may be calculated upon; failures were at first, as now, innumerable, and numberless such are without doubt inevitable. Among the most cogent causes of failure in the raising of seedling Orchids, there can be no doubt that the altered conditions of climate, especially the deficiency of sunlight, and the artificial treatment to which the plants are necessarily subject in the glass houses of Europe, are the greatest. The capsules neither can nor do attain the perfection natural to them in their native countries, and it is more than probable that, independently of the capsules grown in our houses being the production of cross-breeding, they do not yield a fractional part of the quantity of good seed they would do in their native land. And so with their progeny—the tender seedlings are brought into life under circumstances so different from what they would have been in their native land, that it is not at all surprising that multitudes of them perish in their earliest infancy. The capsules are not only less perfect in our houses than they would be in a state of nature, but they also require a longer time to arrive at maturity, a circumstance that must tell against the progeny. The cause of this is also climatic, chiefly of course the enormous diminution of sunlight and sun heat. To make this clear, I will adduce one illustration, and for that purpose I select the New Granadian cattleyas of the *labiata* group, because they are among the best of subjects for the operations of the hybridist. These cattleyas have their home chiefly in the ravines and valleys of the Cordilleras, at elevations ranging from 2,000 to 5,000 feet above sea level, and between the second and tenth parallels of north latitude. The plants by being transferred from proximity to the equator, where on clear days the sun darts his rays either perpendicularly upon the place in which they are growing, or at a comparatively small angle to them, to a high latitude like ours, where the smallest angle at which the sun's rays can fall upon our houses is about 28 deg., and that only for a few days at midsummer, an angle which daily increases, till at midwinter it reaches 75 deg., suffer an enormous diminution of solar light. Now light, in passing through the atmosphere, even under the most favorable circumstances, is subject to absorption, or is intercepted by it, but the amount varies with the angle; thus, it has been shown that of a given quantity of light falling perpendicularly upon a given point, one-fifth of it is absorbed or intercepted by the atmosphere; if it fall at an angle of 50 deg. more than one fourth is intercepted, and at an angle of 75 deg. fully one-half. Hence, in the winter months, even when the days are clear and bright, we can get no more than five-eighths (a little more than one-half) of the solar light these New Granadian cattleyas receive in their native country, on the assumption that other circumstances remain the same. It is quite evident, then, at what a disadvantage we are placed, as regards the ripening of capsules of Orchids whose native home is near the equator, to say nothing of local difficulties, such as the smoky atmosphere and fogs of London.

It is not unreasonable to infer, in the absence of more accurate knowledge obtained by direct observation, that the capsules of the New Granadian cattleyas require but a short period to attain maturity in their native country, and that this period extends only over the two or three months of what is there called the dry season, but which in that region is subject to frequent showers. In our houses, the time required for maturing the capsules of cattleyas of the *labiata* group ranges from eleven to thirteen months, for *Lælia purpurata* it is about nine months, for *Phalænopsis Schilleriana* six months, *Cypripedium Spicerianum* eleven to twelve months, *C. insigne* ten months, masdevallia four months, calanthe three to four months, *Zygopetalum Mackayi* when crossed with maxillaria about six months *Odontoglossum maculatum*, *Dendrobium aureum*, *Anguloa Clowesii*, *Chysis bractescens*, and *Maxillaria Harrisoniana* each about twelve months. But, of course, these periods are only approximate; the time required for the ripening of the capsules is considerably influenced by the state of the weather and external circumstances, especially by the amount of direct sunlight during the year. I note that our experience does not differ essentially from that of M. Bleu, of Paris, who has published in the journal of the *Société Nationale d'Horticulture* the periods of ripening of the capsules of several Orchids crossed by himself, although it might be expected that in the warmer and drier climate of Paris the periods would be somewhat shorter.

Adverse as are some of the influences under which we work to obtain capsules, there is but little difficulty in getting them, and in abundance too; sometimes even from crosses that, to the systematic botanist, would seem almost beyond belief; but then comes the *crux*. Good seed is the all important factor in producing healthy seedlings, and this, unfortunately, from causes already partially adverted to, is obtainable but in a very minute proportion of the whole. Seed we get in profusion, but so little of it germinates that the patience of the most persevering is put to a severe test. The seeds of hundreds of capsules have been sown without yielding a single result. In very many cases only a solitary plant had been raised from a capsule that must have contained thousands of seeds; in very few instances indeed has the number of seedlings from one cross reached a hundred. It is true that we have raised many seedlings in the aggregate, but many of them have appeared when least expected, and when we consider the myriads of seeds that have been sown, and the comparatively few plants raised, we cannot be said to have achieved very great success. It may here be noted that with the exception of cypripedium, which bears the stress of fruit-bearing better than any other genus, many plants bearing capsules become greatly debilitated. During the season the capsule is being matured, growth frequently ceases altogether, and when the plant operated upon is not strong, it not infrequently perishes even before the seed is ripe.

[Diagrams of seeds, and seedlings in various stages of development here introduced. See Plates, pp. 37—45.]

If the ripening of the capsules takes place under such adverse influences, the same influences are by no means propitious to the early infancy of the progency. The period from germination to the formation of the first roots, which, for want of a better phrase, and for the present purpose, I will call the thalloid state of the young plant, and which sometimes occupies several months, is the most critical in the life of seedling Orchids raised in glass structures; it is especially so with cypripedium, calanthe and phalænopsis, and seedlings of these we accordingly find to be the most difficult to preserve prior to their getting firmly rooted. A succession of dull, cloudy days in winter, and even a few hours of London fog, will cause a great mortality, not only among these, but among all seedlings in a similar stage.

The cares and solicitudes of the raiser of Orchid seedlings are by no means diminished when the infant plants are fairly rooted; they must still be constantly tended with the most assiduous care. To neglect the watering, for instance, for a single day, or even for a few hours in the height of summer, may prove fatal; and so, on the other hand, an excess of coddling, giving them too much heat or too much water, by stimulating them into growth before their natural season arrives, is equally a source of danger. Nor is it the only one. We know of an instance of the splendid *Dendrobium nobile nobilius* being crossed with *D. aureum;* the capsule was matured in due course, and the seed sown, but only one seedling was raised. This, as may be readily supposed, was tenderly cared for, but all to no avail; the seedling had grown to about half-an-inch, when one night a vulgar snail devoured the precious morsel at a single meal. (Laughter.) We, too, have had our troubles. Among our earliest phalænopsis crosses we succeeded in raising a single seedling from a capsule of *Phalænopsis amabilis* crossed with *P. rosea*, which we were particularly anxious to save, as it would have solved the question of the parentage of *P. intermedia* or *Portii*, which is a supposed natural hybrid between the same two species. The plant had made three healthy leaves; it was well established in a small pot, which, to be the more secure from danger, was placed upon an inverted pot that stood in a pan of water. One morning, to the great dismay of Seden, it was discovered that a slug had eaten off two of the best leaves, and would, if not trapped, certainly devour the remainder. Anxious to save the treasure, the plant was watched incessantly for hours in the expectation that sooner or later the marauder would make his appearance; to induce him to do so the moss was constantly plunged into water; the repeated duckings had at length the desired effect, the culprit issued from his lurking place and the plant was saved. The two little circumstances I have narrated speak for themselves.

And now, how long must the hybridist wait before his labours are rewarded with a sight of the flower whose appearance he has been awaiting with longing expectation, and upon which many hopes have been built, too often, unfortunately, to end in disappointment.

The shortest periods from the germination of the seed to the production of the flower yet observed are those of dendrobium, that is, *D. aureum* crossed with *D. nobile* and *vice versâ*, three to four years; phaius and calanthe about the same; masdevallias four to five years; chysis about the same. Then come longer intervals; zygopetalum five to nine years, according to the cross, thus, *Z. maxillare* crossed with *Z. Mackayi*, five years, *vice versâ* nine years, a curious, but to us, unaccountable circumstance, as is the case of *Cypripedium Schlimii*, which crossed with *C. longifolium* flowers in four years; but the *vice versâ* cross takes six years. Lycaste takes seven to eight years; lælias and cattleyas may be said to flower from ten to twelve years from the seeds.

[Seedlings of different genera at various stages of growth were here shown. See Plates, pp. 37—45.]

I will now glance at some of the results obtained by us from muling. Dominy began to hybridise Orchids at our Exeter nursery in 1853, and continued his operations for some time after removal to Chelsea in 1864. Seden began at Chelsea in 1866, and has worked uninterruptedly from that time to the present. Our experience, therefore, extends over a period of more than thirty years, during which the field of operations has been greatly enlarged, especially of late years, our experiments being made upon a vast number of cultivated Orchids, including many hundreds of crosses, not only between allied species but also between species of different genera.

Among the results obtained by Dominy at Exeter, *Calanthe*

Dominii, raised from *C. masuca* × *C. furcata*, will always be regarded with interest, as being the first hybrid Orchid that flowered. It flowered for the first time in October, 1856, on which occasion the spike was shown by my father to Dr. Lindley, who exclaimed, on seeing it, "You will drive the botanists mad," an expression quite characteristic of the rigid systematists who flourished prior to the publication of Darwin's "Fertilisation of Orchids by Insect Agency." The first hybrid cattleya that flowered was *C. hybrida*, a plant now lost, but which was soon followed by the flowering of *C. Brabantiæ*. The first hybrid cypripedium to flower was *C. Harrisianum*, which justly commemorates the name of Dr. Harris, a gentleman who first suggested the hybridisation of Orchids. Among other noteworthy acquisitions raised at Exeter were *Cattleya Dominiana*, *Lælia Exoniensis*, *Calanthe Veitchii*, and *Lælia Veitchii*. The last-named flowered for the first time at Chelsea. Dominy also raised some seedling vandas, but they were afterwards lost. Seden's acquisitions are more numerous, and many of them unquestionably prove that substantial progress is being made, in spite of the innumerable difficulties that beset the raising of seedling Orchids. To any one who has compared *Cypripedium cardinale*, *C. Schröderæ*, and *C. Sedeni candidulum*, with the original *C. Schlimii*, this progress is manifest enough. And so with *C. œnanthum superbum*, *C. Leeanum superbum*, and *C. Morganiæ;* nor ought I to omit mention of *Lælia flammea*, still unique in colour among Orchids, *Masdevallia Chelsoni*, *Calanthe Sedeni*, also obtained by other operators, and *Dendrobium micans*.

The following details may prove to be of some interest. Among cattleyas we find that all the members of the *labiata* group and also the Brazilian species with two-leaved stems, as *C. intermedia*, *C. Aclandiæ*, *C. superba*, &c., cross freely with each other, and with the Brazilian lælias, which also cross freely with each other. It is worthy of note, too, that those hybrids which have a two-leaved cattleya for one parent and a one-leaved lælia or cattleya for the other, have some stems with one and others with two leaves, and the flowering does not seem to be affected thereby. [A plant with this peculiarity here shown.] But neither the cattleyas nor the Brazilian lælias will cross freely with the Mexican *Lælia albida*, *autumnalis*, *majalis*, *rubescens* (better known in gardens as *acuminata*), &c. Numerous crosses have been effected both ways, and capsules have been produced, but the seed has always proved barren. *Lælia anceps* appears to be an exception, for it seeds freely whether crossed with a cattleya or with any of the Brazilian lælias. The period from the germinating of the seed to the appearance of the first flower varies immensely in the different crosses, thus *Lælia triophthalma* raised from seed sown in 1875 flowered in 1883, this is the shortest period known to us; *Lælia caloglossa* from seed sown in 1858, flowered for the first time in 1877, or nineteen years, this is the longest period known; the others have taken periods that may be said to average from ten to twelve years.

Among cypripeds some very curious facts have been elicited through muling. Thus, the East Indian species cross freely with each other, and a numerous progeny has resulted therefrom. The South American species, the selenipedia as they are called, also cross freely with each other, and many new forms have been obtained; the hybrids in both sections flower within a few years from the seed being sown. But in the case of the crossing of Indian with South American species, the process has been much slower in producing results. An infinitely smaller percentage of the seed germinates, and those seedlings that survive are so slow in arriving at the flowering stage, that up to the present time not a single plant has produced a flower, although the plants continue strong and healthy in appearance and increase in size every year. One thing is certain, the three-celled ovary of the selenipeds offers no impediment to fertilisation by the pollinia of Cypripeds with a one-celled ovary, for we have plants raised from *C. caudatum* × *C. barbatum*, and many other like crosses between other species have yielded seed.

Cypripedium Sedeni was a remarkable cross in many respects, it was, in fact, raised from two crosses, *C. Schlimii* × *C. longifolium*, and the same two *vice versâ*. It will be observed that in this case, one of the parents, *C. longifolium*, is much more robust in habit and growth than the other parent, *C. Schlimii*. [Plants of *C. longifolium*, *C. Schlimii*, and *C. Sedeni*, were here shown.] No perceptible difference was observed between the plants raised from the two separate crosses, they agreed in habit, foliage, colour of flower, in fact, in every particular. No such similar result has been obtained by us among cypripeds. A *vice versâ* cross between the same two species produces seedlings that vary more or less from those produced from the first cross. Thus *C. tessellatum* resulted from *C. barbatum* × *C. concolor*, and

C. tessellatum porphyrium from *C. concolor* × *C. barbatum*. We have also an instance of two recognised species each being crossed by a third, but both crosses producing like results, thus *C. longifolium* × *C. Schlimii*, and *C. Roezlii* × *C. Schlimii* produced seedlings whose flowers are indistinguishable from each other, although as might be expected, the foliage of the *C. Roezlii* progeny is like that of its parents, the more robust of the two; hence the specific rank of *C. Roezlii* is very questionable.

Not only do recognised species of each section, East Indian and South American, cross freely *inter se*, but the hybrids also cross freely with them. The beautiful *C. œnanthum superbum* has for its parents *C. Harrisianum*, itself a hybrid, and *C. insigne Maulii*. As regards the habit and foliage of hybrid cypripeds, the progeny usually takes a form intermediate between the two parents, but sometimes it is more robust than either. [Plants of *C. grande*, and its parents shown.]

Large as is the field offered by the great genus *Dendrobium* for the operations of the hybridist, comparatively little has yet been effected. Dominy raised the hybrid that bears his name many years ago in our Exeter nursery. It was followed some years later by *D. Ainsworthii*, which appeared in Dr. Ainsworth's collection at Manchester in 1874. Plants of the same cross raised by West appeared about the same time in the Fairfield nursery, near Manchester, and later, in the collection of Mr. Brymer, at Dorchester, by another operator, the parents being *D. aureum* × *D. nobile*. Subsequently Seden raised *D. splendidissimum* from the same cross, and still later, Mr. Swann obtained *D. Leechianum* from *D. nobile* × *D. aureum* or the *vice versâ* of the others. The seedlings raised from all the crosses are found to be variable; members of one progeny approaching so closely varieties among the others, that the original distinctions set up between them cease to be appreciable, but without egotism I venture to claim for *splendidissimum* larger flowers with more substance in sepals and petals, caused probably through our having hybridised finer varieties of the two parents. Nevertheless, to avoid confusion, the progenies should, I think, to use an academical expression, be bracketed.

Of the eight hydrid dendrobes that have already flowered *D. nobile* is one parent of five, and *D. aureum* of three of the same five, and of one other, so that only two, *D. micans* and

D. rhodostoma, have yet flowered that have a parentage in which neither *nobile* nor *aureum* participated.

Crosses between species of phalænopsis have been effected by several operators, and capsules readily obtained. We only know, however, of three instances besides our own where seedlings were raised; the first by Dodds, in 1868, in the collection of Sir John Greville Smith, at Ashton Court, near Bristol, but they were afterwards lost; then Grey, gardener to the eminent orchidologist, Mr. Corning, of Albany, New York, raised some seedlings, but they, too, were afterwards lost; and, lastly, Mr. Hollington, at Enfield, who has, I believe, one seedling still living. Our own experience with phalænopsis dates from 1875; our first cross was between *P. grandiflora* and *P. Schilleriana*, but with that and with several succeeding crosses no results beyond the capsules were obtained. The first capsule to yield seedlings was gathered from *P. grandiflora* × *P. rosea*; a few of these are still living. Then we obtained a few from *P. amabilis* and *P. rosea*, which grew with more vigour than their elder brethren, and may not improbably flower within the next two years. Still later we obtained seedlings from *P. Schilleriana* × *P. rosea*, *P. grandiflora* × *P. Luddemanniana*, and from two or three other crosses.

Calanthe has probably received attention from more operators than any other genus in the great Orchidean family, a circumstance that can be best accounted for by results being obtainable in a shorter period than from any other genus. It may be that calanthe being more terrestrial than epiphytal, there is a predisposition to earlier maturity. The capsule of calanthe usually ripens in three to four months, and the seed takes from two to three months more to germinate; the seedlings under favourable circumstances will flower in the third or fourth year; hence it happened that, although seedlings cattleyas were in existence before seedling calanthes, the first hybrid Orchid to flower was a calanthe. *Calanthe Veitchii* flowered for the first time in 1859, and was at that time believed to be a true bigeneric cross, but such it cannot be now regarded, as Mr. Bentham, in the "Genera Plantarum," has referred the pollen parent *Limatodes rosea* to calanthe. Not so, however, is *Phaius irroratus*, raised by Dominy from *P. grandifolius* × *Calanthe nivalis*, and *P. irroratus purpureus*, raised by Seden from *P. grandifolius* × *Calanthe vestita rubro-maculata*, and a third progeny that has not yet flowered, which was obtained by the last-named hybridiser from *Phaius grandifolius* and *Calanthe Veitchii*. These are entitled to be called bigeneric crosses. In one of the cases only a single plant was raised, and in each of the other two the number was very restricted. It is a curious fact, too, that in habit, aspect, and in other respects the progeny is well-nigh intermediate between the two parents, being neither quite evergreen like phaius, nor deciduous like calanthe.

Masdevallias were taken in hand at an early date, but failures were frequent, caused probably by the fact that masdevallia, as a genus, is far more heterogenous than was at first supposed, whence a mixture of the different sections may not possibly be effected. *M. Chelsoni* was at length raised from *M. amabilis* × *M. Veitchiana*; then *M. Fraseri* from *M. ignea* × *M. Lindeni*, by Mr. Fraser, of Derncleugh, Aberdeen, but the seedlings were reared by us; and lastly, *M. Gairiana* from *M. Veitchiana* × *M. Davisii*. Capsules have been obtained from *M. Veitchiana* × *M. infracta*, *M. polysticta* × *M. tovarensis*, *M. Harryana* × *M. Veitchiana*, and a few others, but all attempts to intermix *M. chimæra* and its allies with the brilliant-flowered species have proved fruitless.

Great as is [the difficulty of raising seedlings from Orchids requiring a high temperature for their cultivation, it is still greater in the case of those that receive "cool treatment," if we except masdevallia. Odontoglossum affords a striking instance of this, paradoxical as it may seem, especially as so many undoubted natural hybrids between different species of this genus have appeared among the importations of the last ten years. Numerous crosses between various species, both Mexican and New Granadian, have been effected, and capsules with apparently good seed have been produced, but with the utmost care that could be bestowed no progeny has yet been raised. Mr. Cookson, of Newcastle, has, indeed, stated in *The Garden*, of February 10th, 1883, that he succeeded in raising a fine lot of odontoglossum seedlings, of which the pollen parent was *O. crispum* and the seed parent either *O. gloriosum* or *O. Uro-Skinneri*, but which he was not quite sure. He has since informed us that all of them have perished. And so with the miltonias, usually classed with odontoglossum, and grown in an average higher temperature, as *vexillarium*, *Roezlii*, and *phalænopsis*. The only seedlings we have been able to raise were obtained from a cross between the two last named, and these were unfortunately lost within a few months after the germination of the seed. I may here note that the late Mr. Bentham, when working up the Orchideæ for the "Genera Plantarum" must, I think, have been misinformed when he states under "Miltonia vexillarium," page 563, that "fide hortulanorum facile cum Odontoglossis variis nec cum Miltoniis genuis proles hybridas gignunt." Our experience is the very opposite of this. *Vexillarium* crosses readily with the flat-lipped miltonias, as *spectabilis*, although thus far we have failed to raise any progeny from these crosses, but not with the true odontoglots; often as it has been attempted, no capsules are produced. Thus, while our experience in muling among odontoglots goes far to disprove the statement I have just quoted, it at the same time confirms unmistakeably Mr. Bentham's view as to the proper generic place of *vexillarium*, and its allies *Roezlii*, *phalænopsis* and *Warscewiczii*.

I have already taken up so much of your time that I must forbear entering into details of the crossings, and results of them, among other genera, and into the scientific aspects of hybridisation it is not my province to lead you. Nevertheless, I may be permitted to refer to a few facts that have come under our observation that have a practical bearing as well as a scientific one.

It will be gathered from what I have already said that our hybridising operations have extended over a rather wide field; that they have not been confined to the crossing of different species of the *same* genus, but hundreds of experiments have been made between species of *different genera*. The question thence naturally arises: How will these bigeneric crosses affect the stability of the genera as at present circumscribed? And, what changes of nomenclature will be necessary to place the Orchideæ on an intelligible basis as regards names? Glancing over the whole range of our operations, and the results obtained from them, I may safely reply that thus far the stability of the genera is scarcely affected, and the changes in nomenclature need be very few indeed. Leaving the progeny derived from species of cattleya × lælia out of consideration, the last-named genus being confessedly an artificial one, only two bigeneric hybrids have yet flowered; these I have mentioned above, *Phaius irrocatus*, and *P. irrocatus purpureus*. Many years ago

Dominy raised *Anœctochilus Domini* from *Goodyera discolor* and *Anœctochilus xanthophyllus*, and *Goodyera Veitchii* from *G. discolor* and *Anœctochilus Veitchii*. Plants derived from both crosses are still in cultivation, but the names they bear are simply garden names. We have plants, but which have not yet flowered, raised from *Cattleya trianœ* crossed with *Sophronitis grandiflora*, and from *Cattleya intermedia* crossed with the same species of sophronitis. We have, besides, a seedling whose parents are *Cattleya trianœ* and *Brasavola Digbyana*, but as the last-named is now referred to lælia, this can hardly be regarded a bigeneric cross. With these few cases I have exhausted the list. But when we enumerate the capsules with apparently good seed that have been obtained from bigeneric crosses, but from which no seedlings have been raised, the list is somewhat more formidable. Some of the most remarkable of these were produced by *Acanthephippum Curtisii* × *Chysis bractescens*, *Bletia hyacinthina* × *Calanthe masuca*, *Chysis aurea* × *Zygopetalum Sedeni*, *Odontoglossum bictonense* × *Zygopetalum maxillare*, *Zygopetalum Mackayi* × *Lycaste Skinneri*. But, on the other hand, we have obtained a large number of capsules of the normal size, and to all appearances externally perfect, not only from bigeneric crosses, but even between species of the same genus, which contained not a single seed. And, lastly, I may note that *Zygopetalum Mackayi* has been crossed with several species of odontoglossum, and seedlings raised from some of the crosses, but every one that has yet flowered has proved to be *Zygopetalum Mackayi*.

The hybridisation of Orchids by the hands of the cultivator is still in its infancy, we are but on the threshold; and now that muling among them has become a pastime of absorbing interest with amateurs—amongst whom special mention must be made of Sir Trevor Lawrence, Sir William Marriott, Sir Charles Strickland, Mr. Bowring, of Forest Farm, Windsor, Mr. D. O. Drewett, of Newcastle, and Mr. Goss, of Torquay—it would be rash indeed to attempt to predict what may be in store. But, reviewing the sum total of results already obtained, can we, considering the ceaseless watching and assiduous care seedling Orchids require before reaching the flowering stage, look upon them with unmixed satisfaction? How few of the best of them bear favourable comparison with the numberless lovely flowers borne by plants that owe their origin to the unerring instinct of the little winged tribe that unknowingly, and, perhaps, unconsciously, have performed their allotted tasks for ages past, and proving, by the perfection of their work, how inapt an operator is man.

I cannot conclude this paper without availing myself of this opportunity of publicly expressing my personal obligation to Professor Reichenbach for the great trouble he has taken in examining, reporting on, and naming our various hybrids, to do which has occupied much more of his valuable time than is generally supposed. (Applause.)

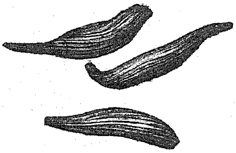
This paper was illustrated by a number of coloured drawings showing the development of seedlings at various stages of their growth, extending over some years.

The President: Ladies and Gentlemen, there will be now an opportunity of discussing the exceedingly interesting paper we have just heard, and if anybody wishes to make any remarks upon the subject, now will be the proper time.

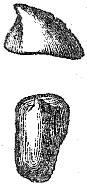
Dr. Masters, F.R.S., said: I am afraid that the number of amateurs and commercial gentlemen who are present to-day will have been so struck with the value of the paper we have just heard read that they will think there is nothing left for the botanist to say; but I hope you will allow me to say that I have listened to that paper with the utmost admiration. I have been much struck by its value, and the number of facts brought forward in it, many of them of surpassing interest, renders it one of the very finest papers ever delivered before this Society. (Hear, hear.) I am anxious to say this at once, and not to go into any points of detail, because they are far too numerous to be discussed on this occasion. The only contribution I would make in the way of discussion is this, that amongst the hundreds and thousands of Orchid seeds I have seen, not one-tenth have been perfect; and this is the reason in all probability why so few of them have germinated under Mr. Veitch's care. The ordinary Orchid seed is a really circular or elliptical bag or membrane, and in the centre of it there is a very small, almost microscopical, germ, and in not one-tenth of the seeds is this little germ present. I merely now wish to repeat that Mr. Veitch's paper is one of the grandest ever delivered before the Royal Horticultural Society. (Applause.)

The President then rose and said: Ladies and Gentlemen, Mr. Veitch mentioned my name as one of those who have had some experience as hybridizers, and I can entirely corroborate,

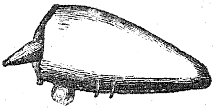
PLATE I.



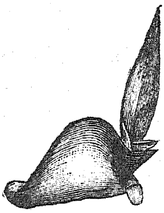
Seed of Phalænopsis.



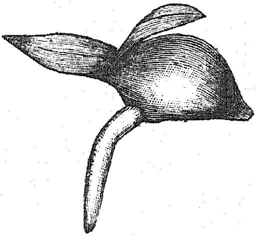
Seedling Phalænopsis, 4 months.



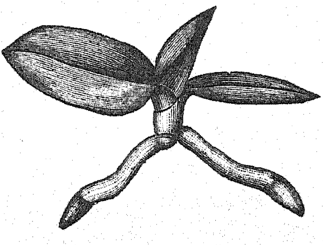
Phalænopsis, 9 months.



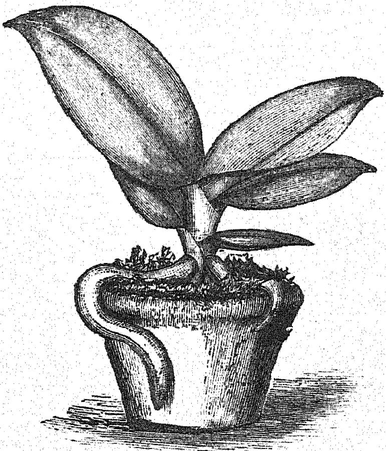
Phalænopsis, 15 months.



Phalænopsis, 22 months.

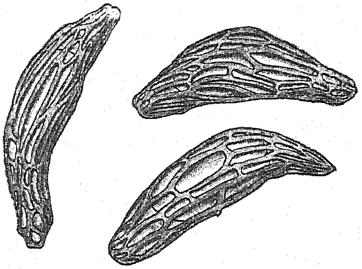


Phalænopsis, 2¼ years.

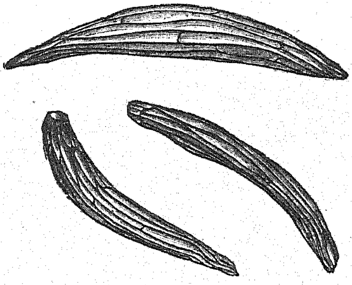


Phalænopsis, 3 years.

PLATE II.

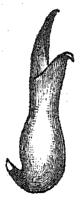


Seed of Eucypripedium.

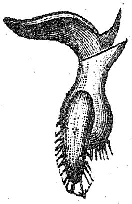


Seed of Selenipedium.

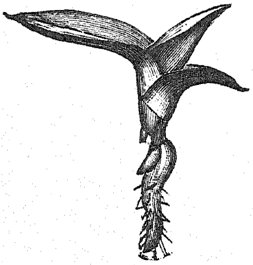
PLATE III.



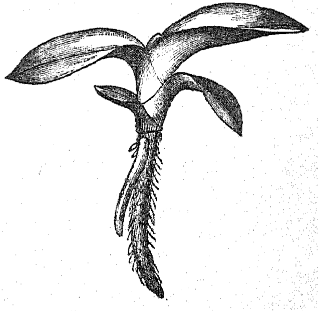
Seedling Cypripedium, 6 months.



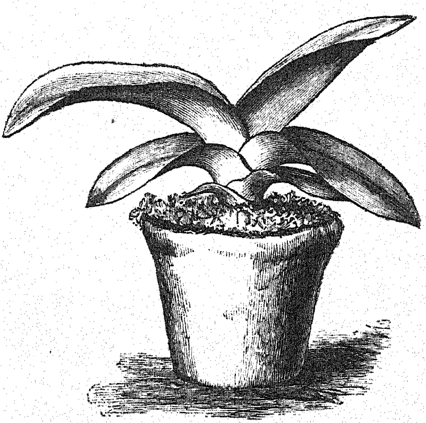
Cypripedium 9 months.



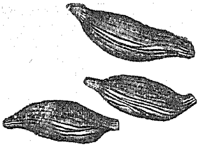
Cypripedium, 12 months.



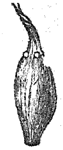
Cypripedium, 16 months.



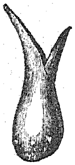
Cypripedium, 2 years.



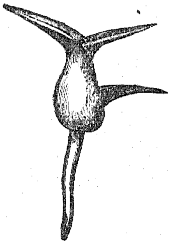
Seed of Dendrobium.



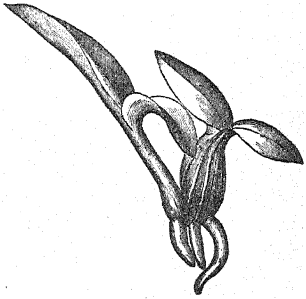
Seedling Dendrobium, 4 months.



Dendrobium, 7 months.



Dendrobium, 12 months.



Dendrobium, 18 months

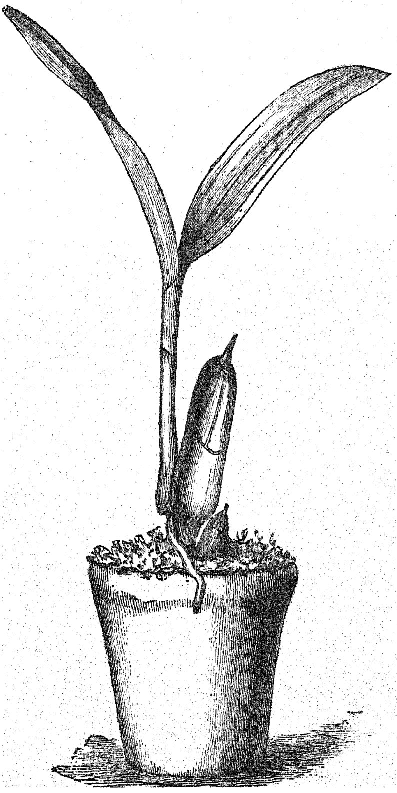
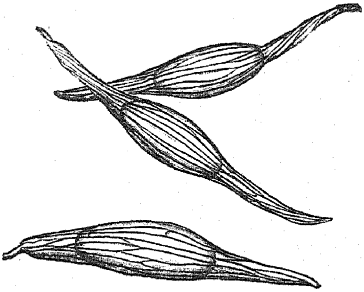
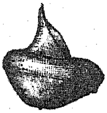


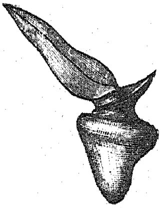
PLATE V.



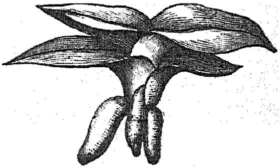
Seed of Cattleya.



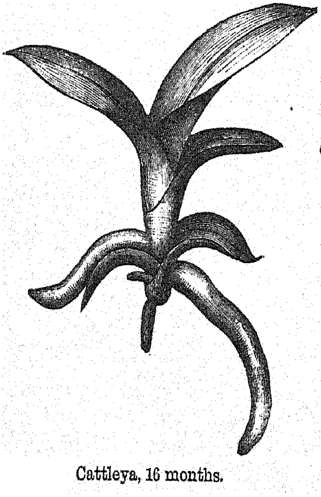
Seedling Cattleya, 6 months.



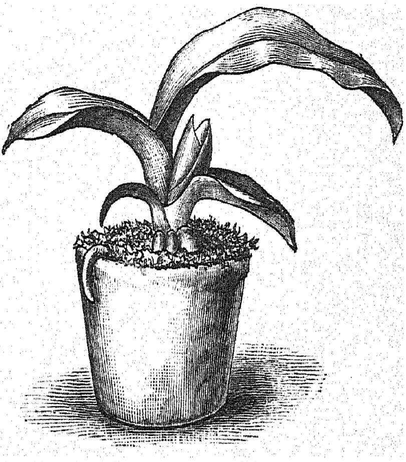
Cattleya, 9 months.



Cattleya, 12 months.



Cattleya, 16 months.



Cattleya, 2 years.

if it were necessary to do so, what he has said about the exceeding difficulty there is in getting fertile seed. Mr. Darwin, in his book on the "Fertilization of Orchids," mentions that, having made a microscopical examination of the seed pods sent to him, he often found that in an entire pod there was not one fertile seed; but, on the other hand, every now and then, for some reasons which at present it is impossible to understand, seed pods do produce a vast number of fertile seeds, and I, myself, have before now from a cross between *cypripedia* produced so large a number of plants that I have been constrained to throw a number away. With regard to *dendrobia*, too, I have had pods which have produced a very large number of plants. I have also had seed from odontoglots which has certainly germinated, but it only arrived at a size which was scarcely distinguishable without the aid of a microscope, and very speedily died. So far as the very small experience I possess as a hybridizer goes, I should say it is far more difficult to raise the seedlings of some hybrid crossings than it is to raise very delicate children. Those errors I referred to in the few opening remarks I made, of diet and treatment, which I am afraid all our knowledge has not enabled us to avoid with regard to children, the very limited experience we have got with regard to the progeny of Orchids does not enable us to avoid in their treatment. A very singular circumstance is mentioned by Mr. Fitzgerald in his book on "Australian Orchids," which shows the extreme difficulty with which they are fertilized. He mentions a magnificent specimen of the *Dendrobium speciosum*, the Brisbane Lily, and says that there were no fewer than 40,000 flowers open at the same time on that plant; but though the plant was growing in the open air and was open to the visits of insects, only one flower produced a seed pod.

There was one circumstance I omitted to refer to in my opening remarks, which I wish to mention now in connection with Mr. Veitch's name, and which is very appropriate in that connection. The Veitch Memorial Medal Committee were so kind as to place at the disposal of the Conference Committee three medals. The Conference Committee were anxious to award these medals in the directions which they thought most appropriate. On previous occasions these medals have been awarded for very remarkable instances of cultivation in Orchids, but we thought we might properly make a departure on this occasion from precedents, and consequently the committee have decided to award the three medals in this way—one medal to Professor Reichenbach for his very eminent services in connection with scientific Orchidology, services of which Mr. Veitch has made an appropriate recognition, and services which everybody interested in Orchids feels to have been of the most remarkable nature. The next medal we thought we should like to award to a gentleman whose name is immortalized in connection with many Orchids, which he was the first to discover and introduce into this country. That gentleman is the Rev. W. S. Parish, who was for a long time a chaplain in the East India Service, stationed in Burmah, and to whose discoveries we owe a large number of Burmese Orchids. (Hear, hear.) The award in the case of the third medal, I think, renders my mentioning the matter especially appropriate on this occasion. We thought we could not more wisely award it than to that very skilful hybridizer, Mr. Seden—(hear, hear)—to whose skill we owe many of the beautiful hybrids which have been produced in Mr. Veitch's nursery. Of course, in awarding that last medal we did not at all overlook the services rendered by a gentleman whom I saw in the room a short time ago, I mean Mr. Dominy. (Hear, hear.) But we had only three medals to award, and so, of course, we could not award more than three, and we thought perhaps it would be more judicious to award a medal to a soldier who is still fighting in the ranks than to a veteran—great as our debt of gratitude is to him—who has retired from them. (Applause.)

Mr. Veitch: May I say that, representing as I do the Veitch family, nothing could gratify me more than that the medal founded in our father's memory should have been given to Seden. He entered my father's service twenty-five years ago, and has been in our employ ever since, and a more zealous foreman it would be impossible to find. I wish to bear testimony to my pleasure that Seden should have the medal.

Mr. B. T. Lowne: I wish to point out that one of the difficulties in rearing seedling Orchids arises, I believe, from the fact that the pollen is only developed from the prolification of the mother cells, after the pollinia are placed upon the stigma. I think it is possible that the stimulation due to the presence of the pollinia gives rise to the development of the capsule, even whilst the ovales remain unimpregnate.

Mr. James Bateman then rose and said: I have particular pleasure in proposing a vote of thanks to Mr. Veitch for his admirable paper. I am sure that he, and Mr. Dominy also, will know and appreciate the effort it costs me to make this proposal, for I have been brought up with the very strongest abhorrence of hybridizers. (Laughter.) I fell into evil hands early in life. My first Orchid-growing friend was Mr. Huntly. When I paid Mr. Huntly a visit at his snug rectory in Huntingdonshire, he pointed out to me his cacti and his Orchids, and said, "I like those plants, in fact they are the only plants I grow, because those fiends (meaning the hybridizers) cannot touch them." (Laughter.) You must make a little allowance for a botanist, for hybridizers do give botanists a lot of trouble—(laughter)—but, however strong my prejudices were, I must confess that when I saw such plants as the cattleya downstairs, if I was not converted, I was, at all events, what comes to the same thing, shut up. (Laughter.) I have the greatest pleasure in moving this vote of thanks to Mr. Veitch. (Applause.)

Mr. John Day said he had great pleasure in seconding the motion, for he thought Mr. Veitch richly deserved the thanks of the Conference for his splendid paper. Mr. Bateman had already said all that was necessary, and he had nothing to add except that he was sure everybody would join in thanking Mr. Veitch most cordially.

The vote of thanks was then carried unanimously.

Mr. Veitch, responding to the vote, said: I am exceedingly obliged to you, ladies and gentlemen, for your kindness. I look upon you all here as one large family, and if anyone can contribute to the pleasure of those they meet, or can add to the scientific knowledge of the country, I think it is his duty to do so. Mr. Bateman is such a kind-hearted, genial gentleman, that many a time I have asked myself why, when he came into my houses, he used to act in such an extraordinary manner when he saw a hybrid. Now I have found it out; it was this friend of his who he has mentioned who set him the bad example. (Laughter.) However, I am very glad to find that Mr. Bateman has lived sufficiently long to get rid of his prejudices against the hybrids, and I hope I shall before long be able to name one after him. (Laughter.)

The PRESIDENT then called upon Mr. O'Brien to read his paper on

"THE CULTIVATION OF ORCHIDS."

Mr. JAMES O'BRIEN said: The subject of Orchid culture being almost inexhaustible, I shall only be able to touch briefly upon some of its phases, and in doing so, whilst endeavouring to make some remarks acceptable to all Orchid growers, I shall direct them principally towards the amateur. A glance at what has been written on the subject many years ago, proves that there may be rules laid down for the culture of any or all of the Orchids, and that a good result once attained may always be secured by following the same line of treatment. Whenever I read a detailed account of the treatment given to an exceptionally fine plant by some grower of forty or fifty years ago, I find that in our practice of to-day we need not depart from it in the least to ensure the same good results, which ought, however, to be attained by us with much less trouble than by those of olden time, by reason of the much better accommodation we have.

Orchids, from the time of the earliest arrivals, have always been appreciated, and as early as the year 1800, when the lovely *Aerides odoratum* and many other showy things were introduced, their habits and culture seem to have been understood fairly well, but the bad construction of the houses and their defective heating by means of flues and other contrivances militated sadly against the culture of the small growers and the varieties requiring cool treatment; and hence, while many continued the culture of the more robust kinds, and attracted visitors from distant parts to see them when in bloom, no general progress was made until the period between 1835 and 1850, which was perhaps the richest in importations of fine handsome Orchids.

During that period the fine discoveries of Messrs. Veitch's collector (Lobb) with aerides, saccolabiums, and vandas; Griffiths with his cymbidiums and dendrobes; Skinner, Barker, and Hartweg, in Mexico, Guatemala, and along the Andes; and other collectors, made quite a revival among the Orchid growers, and the result of new energy being put into the matter was that with some of the showier Orchids such perfection was attained that I fear we could not even now match some of the specimens mentioned as being exhibited at the Horticultural Society's Shows at the famed Chiswick Gardens, where in those days a good collection of Orchids was to be found. Among the best exhibits for many years appear those from Mrs. Lawrence's renowned collection at Ealing Park, that home where our worthy President, Sir Trevor Lawrence, first acquired that love for Orchids which he has turned to such good account in forming and keeping up, always in good condition, the best representative collection of Orchids which was ever got together.

Among the specimens exhibited in 1845-6-7 are enumerated: from Mrs. Lawrence, Ealing Park, *Aerides odoratum*, with sixteen leading growths and between thirty and forty flower spikes; *Cattleya crispa*, with over twenty spikes; *Saccolabium præmorsum*, covered with bloom; *Epidendrum bicornutum*, with many spikes; *Oncidium ampliatum majus*, with many spikes, forming a head of golden flowers over four feet across; and *Odontoglossum grande*, quite worthy of being a leading plant in a collection. J. H. Schröder, Esq., of Stamford Green, is also credited with *Calanthe veratrifolia*, with eighteen spikes, and many other fine plants. J. J. Blandy, Esq., with *Saccolabium guttatum*, with eighteen flower spikes. R. S. Holford, Esq., of Weston Birt, with *Aerides odoratum*, with twenty-seven to thirty spikes. Sigismund Rucker, Esq., also produced specimens which it is pleasant to read about; and among other things, Robert Hanbury, Esq., in November, 1845, exhibited a robust plant of the autumn-flowering *Cattleya labiata*, with four spikes, bearing sixteen flowers between them, and forming a specimen which any of our best collections would be glad to give room to at the present day.

Of plants described as being very fine in different places forty years ago, but which are yet rare, and in some cases the specimens mentioned are not to be matched, are *Renanthera coccinea*, in the gardens belonging to A. Palmer, Esq., at Cheam, with seven panicles on a plant, each bearing from 100 to 110 flowers, and an equally good one of it in the possession of R. S. Holford, Esq., on one of the panicles of which were one hundred and seventeen of its showy scarlet flowers. Good specimens are also mentioned of the yellow *Calanthe curculigoides* from the Straits of Malacca; *Angræcum bilobum*, with a dozen long flower spikes; the rose-coloured *Eulophia guineensis*; and in the gardens of the Horticultural Society, in 1847, a *Lælia superbiens* with nine large heads of bloom.

These notes show that the love for Orchids, which existed from the time the first plants came into the country, has steadily increased, and that their widely-diffused culture of the present day, far from being a modern fashion in flowers, is but the result of the steady progress of that which always existed, and always will exist, as long as that love for flowers, which is one of the chief characteristics of the inhabitants of these isles, remains. For those who want novelty as well as beauty, too, there is as good a prospect still as for those who wish simply for the beautiful, for if we turn to the works of Dr. Lindley, Professor Reichenbach, and other writers on Orchid lore, we there see such a host of lovely things figured or described, but not yet imported, as to prove bewildering even to one, like myself, who has made Orchids a study from childhood. So far as I am concerned, I never could see that there was any difficulty in growing the greater part of our handsomest Orchids, provided the one who took them in hand had a real liking for them, and a determination to use his own eyes and his best judgment for their benefit. In such a case success follows invariably, for Orchids, like the domestic animals, soon find out when there is one who is fond of them about them, and they seem to be happy and to thrive and establish an understanding with such a guardian, indicating to him their wants in many important matters as plainly as though they could speak.

It is this kind of understanding that should be aimed at, as it goes a great way towards securing success, as well as giving pleasure to the pursuit; and it is the existence or the want of this kind of relation between the plants and their master which makes all the difference between a good grower and a bad one—between a healthy collection and a shabby one. Be sure that without someone takes an unfeigned and steady interest the plants, they will not thrive, but if one can be found to be watchful over their interests, and apply what knowledge he can get by what he sees or reads of in other collections, a good measure of success is sure; and hence some of our smaller amateurs, by their diligence and real liking for their plants, often grow things to perfection which have puzzled more scientific men. In growing a general collection of Orchids, however, many stubborn subjects will be met with, but as the bad-doers of the past have given way, those of the present will follow, no doubt, in the case of all who steadily persevere. Every point in

Orchid culture is of importance, one neglected item often causing failure in some direction or other. Let us glance at a few of the most important matters, beginning with

THE ORCHID HOUSE.

In this particular we certainly have the advantage over those of former years, in that we now have compact, well-ventilated, and comfortably-heated structures; but these changes were not made until the Orchid growers themselves took to designing their own houses or advising with the builders about them, and from that time a new era in Orchid culture commenced. The running lights, which were so fond of slipping down in the night, were done away with; the swinging-sashes on a level with the plants on the side-stages were doomed; those neat little sliding-traps at the base of the house, and those convenient top ventilators, substituted, and many other sanitary matters arranged, which anyone may see to perfection in that fine new Cattleya house, and those other recently-built structures belonging to William Lee, Esq., at "Downside," Leatherhead, where one of our largest, best, and best-housed collections will be found, many of the convenient arrangement in those houses being of Mr. Lee's own designing. At Baron Schröder's, too, at "The Dell," Egham, some of the best of our modern improvements, combining usefulness and ornament, will be found; and as the plants contained in the houses are of the best and rarest, a visit to them is a great pleasure to any Orchid grower.

In former times it used to be considered imperative to build the Orchid houses running east and west, and many adhere to that plan still; many also consider that a lean-to or three-quarter span facing north is the best for odontoglossums and cold-house plants. For my part, I cannot say that houses of any other aspect are not as good as these, provided they be properly arranged in other respects. A north house is certainly very cool, and good for cold-house plants, and particularly masdevallias in summer; but, from the very conflicting evidence I have gathered in different parts of the country, I should say that anyone having houses which they wish to devote to Orchids need not be deterred by their facing this way or facing that, or in building new ones to greatly inconvenience themselves to make their houses run in any particular direction.

Tolerably low, span-roofed houses are the best to build for most Orchids, and in building them, no two should be placed together side by side, but each should be built apart, in order to allow of the bottom ventilation being effected by traps opening into the outer air. In some cases, where this has been neglected, chambers from end to end, with openings at intervals, and other intricate contrivances, have been resorted to, but all to no purpose, as the houses have gone back to the style of those of very many years ago, and are practically unventilated, as we now understand the word. It is to the even balancing of the ventilation, by means of the bottom ventilators opening into the outer air, and the top ones at the highest point of the house, that we, in a great measure, may attribute our much better culture of odontoglossums, masdevallias, cattleyas, &c., than the Orchid growers of former years displayed. Next in importance after the ventilation, comes

THE STAGING.

This, by common consent, seems to be best when an open woodwork staging is raised over a close one, containing either water or shingle, which is kept moist. Some, indeed, grow moss on this close staging, and ferns underneath them; but although such arrangement is perhaps beneficial whilst the ferns keep clean, they are so liable to thrips and other insects that they are better kept out of the Orchid houses, in my opinion. The open woodwork staging is certainly very good above the close and moisture-supplying one, and great need of it might be seen formerly in the presence of large numbers of inverted flower-pots for raising the plants.

As a further means of giving moisture and storing rain-water, which alone should be used, wherever it can be obtained, for watering Orchids, too much space cannot be devoted to open rain-water tanks under the stages. Plants watered with rain-water alone have a great advantage over those watered with water from any other source, and Mr. Bateman records his opinion that they are not attacked by those small snails which are so troublesome where they abound. From my own observation I can say that I believe there is a good foundation for the statement.

WATERING ORCHIDS.

The watering of Orchids is a matter on which much depends. It is now pretty generally understood that all evergreen Orchids, either terrestrial or epiphytal, require plenty of water when growing freely, and less when not growing; that those which lose their leaves, such as some dendrobes, invariably require a period of rest, during which water is entirely witheld and a lower temperature given, and that odontoglossums, masdevallias, and the other cold-house things, want water summer and winter; but I find the resting or drying-off system is often overdone, and plants injured accordingly, and that in some collections the plants would be much better if watered all the year round than dried as they are to such an extent that they cannot recover in the growing season what they lose in the so-called resting period.

My own opinion is that any drying-off which causes shrivelling is wrong, and that cattleyas, lælias, and similar plants, if properly potted, do best kept moist, even when not actively growing; but care must be taken to see that they are not in bad peat. As a rule, it would be much better for the plants we often see in small collections if they had one-half the quantity of potting material about them and twice the quantity of water they get given them. Syringing a house of Orchids should never be done, and the syringes should be only used for moistening the staging and back walls, or doing any other work on which it can be certainly employed without harm. When used on the plants the operator cannot tell what he is doing, and in the hands of a thoughtless person the syringe is the most mischievous instrument ever introduced. There can be no rule for its use among Orchids as a means for distributing water, and certainly no benefit that can be set against the loss of young growths and decayed flower-spikes which must follow an indiscriminate use of it.

ON POTTING ORCHIDS.

And now it will be well to notice a few matters connected with the potting and materials used. For growing the epiphytal Orchids in the early days of Orchid culture, blocks or logs of wood were largely used, with, in many cases, wire baskets for the more spreading kinds. These baskets were first made of iron wire, but this being found to be objectionable on account of its rusting, copper wire was substituted. Soon it got found out that Orchid roots and young growths did not like metallic substances, and slate was employed to make baskets of different shapes, which were fitted with wire suspenders. Later on the designs were very varied and fanciful, baskets being made of scollop-shells, cocoa-nut husks, rods of hazel, oak, and maple, all of which were found objectionable for some reason or other.

During all this time the ordinary flower-pot was making way, disguised to meet the case by having holes and slits to accommodate the air roots. This fashion of flower-pot at length became extensively used, but as it was alleged against it that it harboured insects, it had to give way to the plain, common garden pot, which is now doing such great service. But I am sure that we have allowed the common flower-pot to encroach too far, and that while we beat our predecessors with odontoglossums, masdevallias, and many other things which do perfectly well in pots, we have certainly lost ground with saccolabiums, aerides, and plants of that nature; so much so, that they are but poorly represented in many otherwise good collections. My own opinion is that it is solely through potting them instead of basketing them, and that in pots the chances are against them on many points. Their large fleshy roots do not get the air in pots that they do in baskets, and when potted they are generally placed on the stage too far from the glass, and retain the water given them longer than these plants like.

Against these arguments it is said, with much truth, that it is impossible to suspend everything, and that when baskets are used they are dangerous to the plant when decaying. To this it may be answered that if it is for the benefit of the plant, some means of raising it to a fair distance from the glass should be found, and that if the saccolabiums and aerides have done well in baskets, which would have done badly in pots, the trouble of removing the old basket and replacing it with a new one ought not to be considered. The saccolabium specimens at Mrs. Lawrence's, that with twenty spikes at Mr. Blandy's, and all the others in those days were in baskets, and I do not think their equals will ever be found in pots.

The Orchid baskets, too, are so much improved in the present day that all objection to them has been removed, and I venture to predict a great future for them. I should like those who are not satisfied with their saccolabiums, aerides, and smaller vandas, to try them in baskets, using plenty of crocks and charcoal where obtainable, and only a little sphagnum moss.

In growing this class of plants, if the growers would but take the hint from the denrobes, which grow with them in their native habitats, and make the growing-time of the saccolabium to correspond with theirs, they would give their plants less heat and water in winter, and more in spring and summer, and a better condition would come upon them. The excessive heat which is often given to saccolabiums and aerides, and given, too, in winter, and while they are so far away from what little light there is, stunts them, prevents their flowering, and makes it hard work for them even to live.

MATERIALS FOR POTTING.

Now as to materials for potting. Good living sphagnum for saccolabiums, aerides, vandas, phalænopsis, angræcums, and others of like growth, and the fibre of peat composed of fern root alone for cattleyas and lælias, has always been considered the best. Unfortunately, much of the peat of late years has been of grass and heath root, which is liable to rapid decay, and consequently to cause injury to the plants. Various materials, such as cocoa-nut fibre, have been advanced to supersede peat, but none have proved acceptable. I therefore recommend all who wish their plants well to keep to the sphagnum moss and the best peat they can get, using the less of the latter when it is not good, and to leave experiments to others. There are always plenty ready to try new things, and curiously enough it is never the learner who carries the experiments to a serious conclusion, but the well-tried old hand, who, having done all that is good and reasonable, goes in for a new idea on a large scale.

I can call to mind several unaccountable instances of this kind, in one of which I remember a clever grower in the north, who had for years grown his plants to perfection, suddenly became possessed with the idea that chopped sphagnum, and what appeared to me to be road-grit, was the proper thing for all Orchids, and forthwith he proceeded to pot them in it. In another case I found that a previously well-grown collection had been potted in sphagnum moss and what I was told was prepared cocoa-nut fibre. How effectual the preparation was in getting the plants ready to depart this life I need not say.

Above all things a steady perseverance in what others have found to be a correct method of treatment answers best, and it is better to leave doubtful experiments to their originators until they are proven. The worst of it is that wonder-workers are never tired of getting others to injure their plants by trying their schemes, and hence much mischief occurs. For my part I have generally found that the extreme practices, which we hear of from time to time, in the end only go to prove the extraordinary tenacity of life in Orchids, and their adaptability to the different kinds of treatment they must necessarily receive at different hands.

SHADING AND HEATING.

Next comes the shading and heating of the Orchid house. With respect to the shading, I am convinced that all Orchids should be shaded against the direct rays of the sun, and that the shading should, where possible, be varied in thickness according to the plants contained in the house. Some of those very thin materials we see exhibited, when strengthened with webbing, do admirably for lælias and other Mexican and Brazilian plants; the medium textures for cattleyas, and the thickest for cypripediums, masdevallias, and all cold-house plants, all East Indian Orchids, and all terrestial Orchids, such as *Calanthe veratrifolia*, *Phajus Wallichii*, &c. These grow in dense jungles, and bright sunlight dwarfs them and altogether spoils them.

I saw a remarkable instance of this recently in a garden where a *Calanthe veratrifolia* had been kept in a sunny house for years, and had always been a miserable and stunted object. At length it was placed out of the way on the centre bed, and underneath the tall plants, which effectually hid it from view. In a very short time it became a robust, free-flowering plant. I have seen many similar cases where excessive sunlight under glass has had much the same effect as excessive cold would have done. I therefore assert that although most Orchids require a clear light, yet when grown under glass all of them should be sheltered from the unbroken rays of the sun from the time it gets the power to injure until its power wanes. For Orchids in flower a thick shading is absolutely necessary, as the flowers last twice as long shaded, and draw on the strength of the plants much less than they do when exposed to the sun. As regards the heating of Orchid houses, I early found that it was necessary to have some plan, and to adhere to it, checking it by the thermometer. I therefore compiled the following scale for the whole year :—

TABLE OF TEMPERATURES FOR ORCHID HOUSES.

MONTHS.	WARM HOUSE. EAST INDIAN.		CATTLEYA, OR INTERMEDIATE HOUSE.		COOL, OR ODONTOGLOSSUM HOUSE.	
	Day. Degrees.	Night. Degs.	Day. Degrees.	Night. Degs.	Day. Degrees.	Night. Degs.
January	65—70	60	60—65	55	50—55	45
February	65—70	60	60—65	55	50—55	45
March..........	65—70	60	60—65	55	55—60	50
April	65—70	60	60—65	55	55—60	50
May............	70—75	65	65—70	60	60—65	55
June	75—80	70	70—75	65	60—65	55
July............	75—85	70	70—80	65	60—70	55
August	75—85	70	70—80	65	60—70	55
September	75—80	70	70—75	65	60—65	55
October	70—75	65	65—70	60	60—65	55
November	65—70	60	60—65	55	55—60	50
December	65—70	60	60—65	55	50—55	45

Degrees Fahrenheit. The higher day temperature to be attained by Sun-heat when possible.

This scale cannot, of course, be followed to the letter, neither is it necessary that it should be ; it is intended rather to give a basis on which to operate, to enforce a strict guard over the regulation of the heating, and to the preserving of that lower night temperature which is of such vital consequence to the plants, and which should in all cases be insured by night ventilation and by every other means at command. In summer the prescribed temperature will often be exceeded, but it hardly matters by how much if the extra rise is due to sun-heat, and the houses in which the plants are are properly shaded and kept moist.

ARRANGEMENT OF THE PLANTS.

And now the manner of the arrangement of the plants in the houses demands attention, as I am bound to confess that in all ages of Orchid culture, even down to this day, a great mortality has always prevailed among small growing plants. This arises, probably, in many cases, from excessive heat and too little air, but in by far the greater number of cases by the lesser plants being made to occupy the front portions of the graduated stages, thus reversing the proper order of things, and placing the strong plants near the glass and the weak and dwarf ones the farthest from it. From this cause I am sure the periodical scarcity of the ionopsis, trichocentrums, comparettias, barkerias, and such like frail things may, in a great measure, be attributed to the distance they are grown from the glass. Indeed, it is of the highest importance that in general practice some attempt should be made to arrange the plants with relation to the distance from the glass of the roof according to their height and general growth. Hence, the very smallest should always be grown on blocks, rafts, or in baskets or shallow pans, and the others arranged according to their heights, as nearly as the necessity for occupying all the staging will permit.

Allowing 1 ft. from the glass as the safety line, a good rough rule may be laid down that every small or medium-sized true epiphytal Orchid will do best if brought to within its own height of that line; thus, if a plant is 12 ins. high it should be brought to within 2 ft. of the glass of the roof; if 1 ft. 6 ins. to 2 ft. 6 ins., and so on until the larger and stronger growing kinds, which will do in any position, are reached.

The rule should be approached as nearly as possible with small things, but with large ones a distance of 3 ft. from the glass is a convenient and good one. Of course, this rule, like every other in such an elastic matter as Orchid culture, cannot be adhered to in all cases, but if steadily kept in mind and followed where practicable, it will be found of the greatest service in preserving the delicate subjects. Cypripediums, masdevallias, cool-house Orchids generally, and terrestrial Orchids, although requiring some consideration in the same way, are not included in those which it is absolutely necessary to arrange after some modification of the before-mentioned plan. I may also add that fumigation, which is so injurious to many Orchids, claims many victims from the small growers, and it is best for each grower to find some safe liquid insecticide than to resort to fumigating at all.

And now after I have endeavoured to gain converts by showing that Orchid culture is a pleasant occupation to those who possess some skill and much diligence, and who are willing to observe nature and follow her dictates in the culture of their plants, demanding of them only twelve months' work in a year, exercising their judgment in all cases to the best of their ability, and maintaining the most scrupulous cleanliness in houses, plants, and everything around their plants, let me finish with a few observations as to the cost of the plants.

THE COST OF ORCHIDS.

On this head it may safely be said that never were good showy Orchids to be obtained at more convenient prices, and that the present regulation of supply and demand, while presenting to the wealthy collector rare plants for which he must pay well, at the same time offer to him who finds a congenial pastime in tending his one or two little houses of Orchids, plenty of beautiful things as well within the reach of his purse as any ordinary plant would be. Indeed, good things are cheaper now than ever they were, and with the exception of a few very high prices, those realized now-a-days are not the outcome of a new Orchid craze, as a comparison with former prices will prove.

Rare things, according to the esteem in which they are held in their day, have always commanded good prices. In March, 1846, at a sale of Guatemalan Orchids at Stevens's, *Cœlia macrostachya* realized £10 to £12 10*s.*; *Barkeria spectabilis*, £5 to £17 each; *Epidendrum Stamfordianum*, 5 guineas; *Lælia superbiens*, £13 to £15; Mormodes and Epidendrums, 5 to 10 guineas each, and Arpophyllums, £10 to £15 each; the 168 lots realizing £600. In 1845, *D. aqueum* fetched £10 a plant, and later on *D. formosum* 15 guineas, other dendrobes, £10 to £12 each; *Oncidium macranthum*, £5 to £8 each. In 1847, the imported plants of *Vanda Lowii* fetched from £10 to £25 each; *Aerides maculosum*, £20; *A. crispum*, £21; *A. odoratum*, £16, and others equally high prices; Mrs. Lawrence, the Earl of Derby, Mr. Rucker, and Mr. Schröder being the principal buyers. Notes taken at the same period also tell us that errors of description were more frequent in former times than in ours. *Ansellia Africana* is described as having immense sprays of handsome flowers each as large as a tulip, and in another case the auctioneer is entrusted with the sale of a bright scarlet vanda!

It will, therefore, be seen that ever since Orchids were introduced they could command prices according to their beauty or rarity, and so no doubt it will continue to be. Let us hope that the now great facilities for obtaining handsome things, formerly very expensive, may, with the aid of the display of their beauties at this Conference, induce many new growers to commence, each according to his means, for out of such ranks our great Orchid growers of the future will be recruited.

At the conclusion of Mr. O'Brien's paper the Chair was taken by Professor Michael Foster, in the place of the President, who was called away. On the motion of the Chairman a hearty vote of thanks was accorded to Mr. O'Brien, and shortly afterwards the Conference adjourned for an hour for luncheon. On reassembling Mr. W. Lee took the Chair. The next subject on the paper for discussion was

ORCHID NOMENCLATURE.

Mr. HARVEY, in opening a discussion on this subject, said: I feel very great diffidence, in the presence of men who know so much more than I do about Orchids, in alluding to the subject. My excuse, however, must be that I feel very strongly on the question of nomenclature. The great difficulty we have to meet with to-day is the absence of Professor Reichenbach, without whom I am afraid we cannot do much in this matter. I think that, as we have had a Conference on the nomenclature of daffodils, we ought to have one on the nomenclature of Orchids; and, indeed, it is especially required. Now, although I do not suppose that it is in the power of the present Conference to decide that the Orchid Conference Committee shall be a permanent institution, I suppose the Council of the Royal Horticultural Society could do so, and what I would venture humbly to suggest is this, that the latter body should be asked to accept the recommendation of this Conference, that the Committee should be appointed permanently. I feel sure that nothing can be done in the matter of nomenclature without Professor Reichenbach, and therefore the mode in which we ought to act seems to me to be that we should ask the Society, on the recommendation of this meeting, to make the Orchid Conference Committee permanent, and that we should take steps to secure the presence of Professor Reichenbach at a future date, and then go into the question in a systematic and scientific manner. (Hear, hear.) I think I know some things which perhaps I ought not to mention, but I believe Professor Reichenbach's attendance might be secured if we took the right mode of doing it. Unfortunately, the learned gentleman's health is not very good, but I think he would come, and, in fact, I have had a letter from him saying that he would be present to-day.

The CHAIRMAN: The question of nomenclature of Orchids is a very extensive one, and is one which, I think, cannot be properly dealt with on the present occasion. When the Committee put this question down on the paper for consideration to-day, it was hoped and expected that Professor Reichenbach would carry out his promise to come to the Conference, and we had intended to refer the whole of this question to that gentleman, and to get him to give us a paper on the subject, as we want a little direction in that way. If the question of the nomenclature of daffodils was of importance, surely the question of the nomenclature of Orchids is of much more importance. At present we are rather at sea about the nomenclature of Orchids, as we have only just a few names which have been given to us by Professor Reichenbach, and we want a more extended and general consolidation of this question. I am, therefore, afraid that it cannot be discussed on this occasion. The question might be referred, in the manner Mr. Harvey has suggested, to the Orchid Conference Committee, before they quite close their labours, and they would certainly bring the question forward and not lose sight of it. More than that I do not think we can do to-day, but of course we shall be happy to hear any remarks on the question, if any gentleman has anything to say.

Mr. Lynch observed that it was of course necessary in the first place to ascertain all that could be learned about every individual plant, and then they might be compared in series which should be as complete as it was possible to get them. This would, he thought, give the best results scientifically and horticulturally. This system had been applied to the Iris family, and as there appeared to be something in common between the Iris and the Orchid, it would perhaps be possible to take the Iris example and apply it to the classification of Orchids.

Mr. O'Brien said he had only to observe that if they were to defer the matter of nomenclature until they could secure Professor Reichenbach's attendance, they ought not to go too far in it at present. For his own part he was prepared to make a few observations on the subject, but on the lines they had now laid down he thought it better to defer them.

Mr. Burbidge remarked that in his mind there was nothing whatever to prevent the Orchid Conference Committee from discussing the matter among themselves, though perhaps they could not do so in public.

It was then agreed that the question should be deferred to a future date.

The Use of Manure in Orchid Growing.

The Chairman: I have just had laid before me the question of—what shall I say?—the question of the use of manure in the cultivation of Orchids. Now all manures are composed more or less of substances of an aciduous nature, but I have had one kind of manure brought to my notice which is quite free from acid of any kind. It is the fish manure of Messrs. Jensen and Co., of which firm Mr. Alfred Borwick, who is a member of our Society, and who I hope is here to-day, is one of the proprietors. I should like to call upon Mr. Borwick, if here, to tell us something of the experience he has had in the cultivation of Orchids with this particular kind of manure.

Mr. Alfred Borwick then rose and said: I have some difficulty in complying with the request of the Chairman in this matter, because the idea of anything like manuring Orchids is horrible to most Orchid growers. It has often been a source of regret to me to see so many Orchids dwindle, if not possibly pass out of existence, after they have heavily flowered, not from any want of care or devotion, for that is generally in excess of the demand, but apparently from a deficiency of strength, or in other words a species of starvation. I am led to think this must be the case from information conveyed by travellers and collectors, that birds throng the trees upon which Orchids are found, and that they supply in their dung a rich diet, containing, as it does, ammonia, phosphoric acid, and some potash, which is washed by the rains and dews into the interstices of the trunks, so that the plants not only enjoy the advantage offered by residence on living trees, but the stimulant and food provided by the birds. Terrestrial Orchids in the same way have the benefit of decaying vegetation, which supplies stores of ammonia. As soon as plants come into house cultivation, there is at once an end to these rich manurial provisions, and they have to depend upon moss, peat, charcoal and crocks, with possibly occasional charges of liquid manure, for their subsistence. In all the soils and ingredients used for potting Orchids there is little trace of potash or other manurial constituent, and nothing goes to promote the development of fibre in plants like potash. The aim is to produce bulbs of largest size and firmest growth, but that is impossible unless there are healthy roots in abundance, and these roots can obtain a sufficient amount of nourishment to supply the fibres, of which the bulbs mainly consist. The manure which I have used for some time is that of Messrs. J. Jensen and Co., 10, St. Helen's Place, E.C., who are engaged in the manufacture of fish manure at the Loffoden Islands, the seat of the great Norwegian cod fisheries. When I tell you that this year no fewer than 32,000,000 of large fish were caught, you can form some slight idea of the magnitude of the fisheries. The fish are gutted, the bodies salted for food, the livers go to make oil, while the heads and backs are available for manure. They are dried, pulverised, and reach England in the form and condition of flour. The average manurial constituents of dried cod-fish are 10·60 ammonia, and 30 phosphates. Grand as these ingredients are in themselves, they are wanting in one thing, namely, potash. If this is absent, it is impossible to obtain perfect fertilization; wherever it is present in due degree, the effect is astonishing in the vigour and rigidity of plant growth. Refined salts of potash and magnesia are added to the fish manure, and at once produce a perfect fertilizer of similar constitution to bird dung, and containing the essential constituents of ammonia, phosphoric acid, and potash, in the form most available for plants. In this manure there is no acid used; fishbone is very gelatinous and when sufficiently pulverised dissolves in the soil, so none is needed. Seeing, as I did, the effect of this combination on all pot plants, it struck me that Orchids might like it also. Last August I began to experimentalize upon a plant of *Cymbidium Lowii*, and requested my gardener to put half-an-ounce on the soil. We soon observed a darker colour in the foliage; in four or five weeks two strong growths appeared, which proved to be flower spikes; as they grew more fish potash was added from time to time. Since then there are five breaks, four of them of strength sufficient to content anyone. I then ordered its use for all terrestrial orchids, Lycastes, Calanthes, Sophronites, Phaius, Zygopetalums, Odontoglossums, Masdevallias, Dendrobiums, and even for Oncidiums and Lælias. So far, vigour seems to be on the ascendant, and I see no reason whatever to retire from the line taken up or to alter my views. The plan of operations is simple. My gardener uses more peat round the sides of the pots, and he merely dusts the peat with a pinch of the manure, and wherever the fish potash is, there the roots work. Mr. Wm. Bull told me a fortnight ago that it was a vexed question as to what extent manures could be used for the cultivation of Orchids, and one which demanded the consideration of growers. The manure to which I have alluded is very easily obtained and applied. I would not recommend anyone to make trials, except on plants of little value, and then no harm can be done. If it is found serviceable in the way indicated, there will then be time to consider a wider application. (Applause).

The CHAIRMAN: I do not know whether any cultivators of Orchids here have ever ventured to try any manure on their plants. I have never heard of its being done, but if any gentleman here has made the experiment we shall be very glad to hear what he has to say.

Mr. HARVEY: I did once try an experiment with manure on a *Cymbidium Lowii*, but I very nearly killed it.

Mr. JAMES: For some years past we have been in the habit of using pure horse urine, after it had been diluted, on many Orchids, and we have always found that, when used, it has proved very beneficial, especially in the growing season. We are using it largely for damping the stages and paths at night, when a heavy dew quickly arises. I think, if we take into consideration what Mr. Borwick has already hinted at, the fact that plants invariably suffer extremely after carrying their heavy spikes, it seems to impress one with the thought that there is some necessity for sustaining the strength. The question has been raised of late years as to whether Orchids benefit by having their spikes removed after they are formed. I have no doubt in my own mind that it is a marvellous advantage if you want to gain strength in the plants. I have an instance of the *Odontoglossum Alexandræ*. Two years ago we took very special care of it as being an extra good one. Somehow a small slug got into it and eat the spike out and it at once began to make two bulbs, but most unfortunately the spikes got eaten out of the two bulbs. The result has been that this year it has made a double growth from each bulb, and now it has four heads to the plant, and, marvellous to say, it has sent up nine spikes to the flower, an instance which I have not seen before in an *Alexandræ*. One bulb has three spikes on the side of the double leaf. I take it for granted that this must be merely a question of strength from raising the plant, which was a moderately strong one. Further, I think, that as regards the question of some kind of nutriment, it is not so much a question of what kind is applied, but rather of how it is applied. If you drench the flowers with pure horse urine diluted and use it in watering, it benefits the plant, because from the constant moisture going up in the growing season, the plant must take in the ammonia which is constantly rising. With reference to syringing, I do not think that all our friends would have agreed with Mr. O'Brien in never using the syringe, and I think that statement would require qualification. We have always used weak liquid manure on the surface of the plants, and a moderately good practical rule is not to use it strong enough to injure the flower. I do contend that the syringe is beneficial in the growing season, especially when the nights are genial and there are no frosts. I think that manure is quite beneficial, and I have satisfied myself on the matter with reference to the many different things we have used. The difficulty which many meet with in using artificial manures, and which I myself have met with, is that of beginning by applying it too strong. Whenever people begin to use it they begin with it too strong. If they would only use it weaker and then proceed to ascertain for themselves the plants that will take the strongest kind, they will not have so many failures.

Mr. Burbidge: In connection with what Mr. James has said as to cutting off the spikes of Orchids, I have no doubt that must be of the greatest assistance to the plant. Twelve or fifteen years ago the finest plants in England were those in the collection of Mr. E. Salt, at Ferniehurst. I never saw plants which grew so well, and all their growth was owing to the spikes being cut off. Mr. Salt had a delicate wife who could not go into the Orchid house, and the consequence was that Mr. Salt cut the spikes at once, even before the last flower on the spikes had expanded; and I believe that it was owing to that that they were the finest specimens I ever saw. The question of manure for Orchids is a very delicate question. Mr. James tells us we must not use the manure too strong, I think the best point in Mr. Borwick's paper was, when he told us to use the manure on our common plants. I am very anxious to put the point in this way, because if young growers begin to use manure without having some proportion given to them, some absolutely exact data as to cases in which manure has been successfully used, they will simply be playing with fire. I am very anxious to put these points before the meeting, because I have often seen these plants so badly injured by an indiscriminate use of manure.

Mr. James: I contend that the flowers draw up their nutriment from the dew of the house in a very much larger measure than from anything in the peat; and I say again, that if the manure is not too strong it is beneficial to the plant. I do not think for a moment that any young grower would be so stupid as to water any plant with liquid manure. There is just now springing up an idea that young men are the right men to conduct the affairs of the world, both in gardening and in everything else. Perhaps old men are not always wise, yet I do think that if young men do begin to water Orchids with liquid manure they will do a very stupid thing. At any rate, I think it would be a wise method to practice first of all on those plants you care the least about in regard to value.

Mr. Druitt: I simply wish to say that I consider the use of manures to be distinctly beneficial to terrestrial Orchids.

Mr. Heath (Cheltenham): The question of watering Orchids with manure is a most difficult one, and one that will have to be argued out by practical people. There is no doubt that Orchids are watered by a great many growers with manure, but they generally like to keep their secret to themselves. As regards Orchid manuring we have not used it over the tops of the pots, but we have used on several occasions cow manure, sheep manure, and horse manure, and we also tried the three together with a small addition of soot. We found the plants were very vigorous for a year or two, but after that we were bound to wash the entire plants out, for we found they got rather a yellow hue. Since that time we potted them, and instead of watering them overhead we have thrown down in the house manures, in the way of nitrate of soda and sulphate of ammonia, and after a week or so we found the plants became of a most brilliant dark green colour. The only thing we find is, that all the different classes of dendrobia and cypripedia will take a large quantity of liquid manure of any sort; but tender roots do not take so large an amount of manure of the same strong kind. We have tried this plan now for six years.

The Chairman: Most of the remarks which gentlemen have made on this subject do not appear to have been upon the identical question which I introduced, that is, the direct application of this powder of fishbone, which is not treated with acid, as is usual with most manures. But this manure, I am informed, is absolutely free from all aciduous matter, and therefore it suggests itself to my mind as a perfectly novel manure; and although we are perfectly well acquainted with all the methods of getting atmospheric manures, still we are not so well acquainted with the direct application of this powder to the roots. It was for this reason that I introduced the question, and having introduced it and heard the various remarks that have been made, we will now leave it.

Dr. MASTERS: It appears to me from what has been said on this subject, that we have to deal with general principles. In the first place, we do not know the chemical composition of any part of the leaf or of the flower, and until we know that, we cannot have any definite rule as to the right manure to apply or when to apply it; but we may certainly say without any fear of contradiction, that all plants, Orchids not excepted, want manure, and are the better for it, at a certain time. The thing to know is, what is the right food to give, and what is the proper time to give it. The proper food to be given them at one time is that which will make bulb and leaf, and which at another time will enable them to form flower and seed. Now, as to the structure of Orchids, I may perhaps be more at home. The structure is extraordinarily diversified. The internal structure of leaves, flowers, and roots, even in the same genus, is widely different, but I cannot believe that the appropriate food must be equally different. That we have got to find out in the future. More especially I would call attention to the roots of these flowers. There is nothing in nature like the root of an Orchid. Instead of turning down into water like most other roots, the Orchid root almost invariably turns up from it; therefore, if you dip these roots into liquid manure, I think you will be quite certain to injure them, as they undoubtedly absorb most of their food through atmospheric agency.

Mr. BORWICK: I would not use the ordinary bone manure, because it is so hard by nature that acid is required to make it mix with the ground. But the manure of which I have spoken mixes easily with the ground without any acid at all.

Mr. JAMES: Are we to understand that this Orchid Conference will continue yearly? If so, I may suggest that on a future occasion we might exhibit plants that have been put to the various processes mentioned. In following up what Dr. Masters has said, I think it is proved to demonstration that the whole nutriment is taken in by the plant in the way he has suggested.

It seems to me that everything points in the direction that the whole of the nutriment which the plant draws in, whatever it is, is taken through the air, upon which the plant subsists. Should we continue this meeting at a future time, I think it would be worth while for any members who may have special subjects to bring before the meeting to treat them in their own way.

The Chairman, after a hearty vote of thanks had been awarded to Mr. Borwick for his remarks on the question of manures, said: I cannot give any promise that this meeting will be continued, because we have hardly got so far as that. When we first took up this idea of an Orchid Conference, we did so with considerable trepidation, because we had not only to consider the time of the year when people would be in London, but also the season when plants could be moved without being injured. Of course, if we want to have the best possible show, we ought to have it very much earlier; but then we have to consider about people being in London, and the question of visitors, and other matters connected with it. It must be remembered that this Conference brings no grist to the mill of the Horticultural Society in any way. We do not take any money at the door, but it is all done out of the pure love of Orchid growing. (Hear, hear.) I should say, speaking my own mind and feeling on the subject, that this Orchid Conference should continue. It has, I think, been a great success, everybody seems to have been exceedingly well pleased and satisfied, and I must say a great deal more interest has been taken in the subject than I ever expected to see. I was especially glad to see so many gentlemen come back after the adjournment for lunch. It now only remains for me to thank you all for your very kind attendance and for the very patient way in which you have listened to the remarks that have been made. (Hear, hear.)

Mr. Holbrook Gaskell, of Liverpool, then said: I strongly hope that the Council of the Horticultural Society will see their way to make this an annual Conference. I am quite sure that the oftener it is held the more largely it will be attended. I would wish now to propose that the thanks of the meeting be accorded to those gentlemen, especially to two of them—Sir Trevor Lawrence and Mr. Lee—who have taken such a vast deal of trouble for our entertainment.

This motion having been carried with acclamation, the Chairman announced that there would be a Primula Conference next year, and the proceedings were brought to a close.

REPORTS
ON THE
PLANTS EXHIBITED.

I.
HORTICULTURAL,
BY

F. W. BURBIDGE, F.L.S.,

CURATOR TRINITY COLLEGE BOTANICAL GARDENS, DUBLIN; FORMERLY OF THE
ROYAL GARDENS, KEW; MEMBER OF THE "SCIENTIFIC COMMITTEE"
OF THE ROYAL HORTICULTURAL SOCIETY.

II.
BOTANICAL,
BY

H. N. RIDLEY, M.A., F.L.S.,

BOTANICAL DEPARTMENT, BRITISH MUSEUM; ETC., ETC.

REPORT

ON THE

PLANTS EXHIBITED.

I.

HORTICULTURAL.

INTRODUCTORY.

ORCHIDS are so extremely popular to-day that the holding of a special Conference on these plants by the Royal Horticultural Society, in May last, seemed quite natural, seeing that they to some extent represent the horticultural respectability of many nineteenth century gardens. That the exhibition was very successful goes without the saying, and visitors had indeed a good opportunity of forming for themselves very vivid impressions as to the beauty and variability of these interesting plants. For the benefit of those, however, who were not able to attend, our report is both critical and explanatory.

One of the first points which strikes one in connection with the late Conference is the fact that in the main professional botanists were conspicuous by their absence, so that the burden of management fell almost entirely on the shoulders of amateur and trade growers, aided of course to the utmost by the officers of the Royal Horticultural Society. That the absence of Professor Reichenbach and others was, in a way, very unfortunate is generally acknowledged, and in what manner I hope to show in this report under another head. Perhaps it is best that the Orchid Conference and its results may after all be considered as a successful beginning of the Orchid question, rather than in any sense final and absolute. At the same time, were we to compare this meeting with those held in connection with (1) Apples, and (2) Daffodils, it would not be quite fair, seeing that in the case of Apples one thousand five hundred and forty-five varieties of one species (*Pyrus malus*) only were under consideration, and in the second only a solitary genus (*Narcissus*) of about twenty species, and, say, five or six hundred varieties and forms was discussed. On the other hand, when we consider that in the natural order of Orchids we have at least three hundred and thirty-four *genera*, comprising, according to various computations, from six to ten thousand species, the vast difference between the wider scope of our present Conference and former ones becomes strikingly apparent. Even when we grant that we have only about one thousand five hundred or two thousand species and varieties of Orchids in cultivation, and for a moment remember that some or other of these entirely fill up a whole year by their flowering, it becomes at once apparent that no one Conference or exhibition can include more than a portion of that number. As a matter of fact, only fifty-seven *genera* of Orchids were represented on this occasion by about three hundred and fifty species and varieties. We thus see at a glance what a mere fringe of the subject was touched upon after all, albeit that the finest of all the seasonable kinds were exhibited. Besides all this, one must not fail to point out the fact that the great trade collections were but poorly represented, owing to the principal nurserymen having semi-public exhibitions of their own on view at the same time. It is when we look at the late Conference in this light that its real importance is seen, notwithstanding that its necessarily limited representative or seasonable character becomes also more fully apparent.

It is, however, much to be desired that a meeting so successful and instructive should be followed by other Orchid meetings of a similar calibre from time to time. It is almost needless to say that our climate renders the exhibition of tropical Orchids nearly impossible, except during the warmest months of the year; but if a permanent Orchid Committee were appointed, much good work might be done by its members, even at the ordinary flower shows and meetings of the Royal Horticultural Society.

DESCRIPTIVE AND ANALYTICAL LIST OF GENERA, SPECIES, VARIETIES, AND HYBRIDS SHOWN.

The *genera* exhibited at the Conference numbered 57 in all, the total number of species and varieties being 348. The proportions stand as follows:—Odontoglossum 66, Masdevallia 48, Cypripedium 40, Dendrobium 34, Cattleya 27, Oncidium 19, and Lælia 11.

The following is a descriptive enumeration, in alphabetical order, of the *genera*, species and varieties exhibited:—

ACINETA.—A. Humboldtii is a species from Colombia, of Stanhopea-like habit. Flowers fleshy or wax-like, yellow spotted with brown; odorous. Also known as A. superba, and as Peristeria Humboldtii.

ADA.—A. aurantiaca is an evergreen species, nearly allied to Brassia, from Colombia, bearing erect nodding spikes of vermilion-coloured flowers. The generic name is commemorative of the Golden God of the Assyrians.

AËRIDES.—Five species and varieties were shown. A. Ballantinei, a showy kind; A. Fieldingii, or "the Foxbrush," "Air Plant;" A. Houlletianum; A. quinquevulnerum, the cinque spotted; and A. Veitchii.

ANGULOA.—Three kinds were shown, viz., A. Clowesii, with yellow flowers like deformed tulips; A. Turneri; and A. uniflora maculata, a purple spotted variety from Peru. A. Clowesii, commemorates the late Rev. John Clowes, who bequeathed his collection of Orchids to Kew.

BOLLEA (Huntleya).—Two species only were shown, both natives of Colombia, viz., B. Lalindei and B. Patini.

BRASSIA.—Only one species, viz., B. cinnamomea (B. Keiliana = B. glumacea) was shown. It is a native of Merida (? Venezuela), with greenish-yellow flowers.

BULBOPHYLLUM.—Three species were shown, viz., B. Dearei, of dwarf habit, with yellow-brown lined flowers; B. Lobbii, a smaller-flowered species of similar colour; and B. Siamense. All are of Eastern origin. To this genus B. (Megaclinium) oxypterum, an African species, is added by some authors. It is of botanical interest only. Native of West Africa.

BURLINGTONIA.—Only one species, viz., B. fragrans, from Brazil, was shown. It has recurved or drooping spikes of fragrant white flowers, and is very ornamental when well grown.

CALANTHE.—Two evergreen kinds, viz., C. Dominii (the first hybrid Orchid), with erect spikes of purplish flowers and the Javanese C. veratrifolia, were shown. The latter has pure white blossoms.

The pseudo-bulbous or deciduous section of this genus was represented by C. vestita igneo oculata, having white red-eyed flowers, from Moulmein; also the variety gigantea, with stouter spikes and larger blossoms; and Sanderiana, a novel introduction.

CAMAROTIS.—An old species, C. purpurea, used formerly to be a favourite exhibition plant, specimens having been shown at the Chiswick Flower Shows bearing over a hundred spikes of its bright rose-purple flowers.

CYPRIPEDIUM.—Forty species and varieties of these interesting Lady's Slipper Orchids were shown, about twelve of them being garden hybrids raised by Messrs. Veitch and others. The most interesting were C. Godefroyæ, a novelty, from Cochin China; C. argus, a richly spotted kind from the Philippines, C. barbatum in variety; C. caudatum, from Peru, with petals over two feet in length, and a great octopus pouch-like lip. C. Harrissianum was of interest, as being the first hybrid raised in the genus, and as having been named in compliment to Dr. Harris, of Exeter, who suggested to Mr. Dominy the idea of cross-fertilising Orchids. C. Stonei, from Borneo, and its valuable ribbon-petalled variety, C. Stonei platytænium, were well represented, single plants of the last-named being valued at from £80 to £140 each. C. lævigatum is interesting as having been found growing on the roots of Vanda Batemanii in the Philippine Isles. C. Lawrencianum, found in North Borneo, is a handsome species, larger than C. barbatum, and named in compliment to Sir T. Lawrence, Bart.

The other forms shown were C. albo purpureum, barbatum grandiflorum, biflorum, Bulleni, calurum, concolor, niveum, ciliolare, Dayanum, Druryii, grande, Haynaldianum, Hookeræ, Lowii, marmorophyllum, microchilum, Parishii, Pearcei, Roezlli, Schlimmii, Sedeni candidibulum, Selligerum, do majus, superciliare, Swannianum, tessellatum porphyreum, villosum, vireus, vernixum, Wallisii, and Warneri. Eighty-four plants in all were shown.

Dendrobium.—Thirty-four species and varieties were represented, nearly all being Indian kinds. The most remarkable were D. Brymerianum, with glossy, gold-coloured flowers, the lip being deeply fringed; D. Harveyanum, of similar character, but having deeply-fringed petals; D. crassinode album, a white-blossomed variety of a well-known showy species; D. albo sanguineum, a rare kind, with large buff, purple or claret-blotched flowers. Amongst the most showy were D. Falconeri, D. Wardianum, D. fimbriatum, D. Dalhousieanum, D. thrysiflorum, D. macrophyllum, and D. Cambridgeanum, all well-known kinds. The black-haired section (nigro hirsutæ) were represented by D. infundibulum, D. Jamesianum, D. cariniferum, and D. cruentum, the remainder being D. Bensoniæ, D. chrysotoxum, D. clavatum, D. densiflorum, D. Devonianum, D. fimbriatum, D. Jenkinsi. a curious little creeping species, D. Paxtoni, D. Pierardi, D. primulinium, D. pulchellum, D. rhodostoma, D. Smilliæ, D. rhodopterygium, D. tetragonium, and one or two others. Sixty-seven plants in all were exhibited.

Dendrochilium.—D. filiforme was the only species shown, and is the very epitome of neatness and gracefulness amongst these charming flowers. The racemes of golden-green blossoms resemble the most dainty filagree work, and droop from among the deep green grass-like foliage in the most elegant manner. Philippines.

Diacrum.—A very fine and well-cultivated specimen came from Kew, bearing fine stout spikes of its pure white purple-dotted flowers. It is commonly known as Epidendrum bicornutum, and is, together with one or two Schomburghias, remarkable amongst Orchids in having hollow or cow's-horn-like pseudo-bulbs, both alike forming shelter for various species of tropical ants. D. bicornutum is a native of Trinidad, where it has been found clinging to rocks quite near to high-water mark, and within reach of the salt spray.

Disa.—Two well-grown specimens of Disa grandiflora (the "Flower of the Gods") were shown, neither being in bloom. It is the most showy of all terrestrial Orchids, and comes from the watercourses on Table Mountain, South Africa.

Epidendrum.—Five species and varieties only were represented. E. ibaguense had reedy stems and lilac trusses of flower; E. Parkinsonianum, with channelled, fleshy, glaucus leaves, and large pure white flowers; E. rhizophorum, another species of reed-like habit; E. vitellinium, and its variety E. vitellinum majus, having glaucus-leaved pseudo-bulbs and branched spikes of pale orange-vermilion coloured blossoms. All are South American or West Indian.

Eria.—An Indian genus (allied to Dendrobium), of which only one inconspicuous species, viz., E. excavata, was shown. Flowers whitish, in lateral clusters, issuing from a depression in the fleshy pseudo-bulbs.

Galeandra.—S. Devoniana alone was exhibited. It is a plant of grassy or reed-like habit, from the Rio Negro, and was named long ago by Lindley, in compliment to the late Duke of Devonshire, a patron of the Royal Horticultural Society, and one of the first of amateur Orchidists. The flowers are borne seven or eight together in terminal nodding spikes, and are whitish, veined with purple on the expanded involute lip.

Grammatophyllum.—The plants of this genus are known popularly as the "Letter Orchids," and are from Malaysia and Madagascar. The plant exhibited appeared to be an undescribed species.

Houlletia.—A small genus from Colombia. The species exhibited, H. odoratissima, bears numerous yellowish-purple marked flowers of exquisite fragrance, whence the specific name.

Ionopsis.—A small genus of Brazilian or West Indian Orchids, extremely difficult of cultivation. One species grows in Jamaica on the twigs of hedges and trees in full sunshine, and the best success is obtained by bare-block culture in our hothouses. The kind shown was I. utricularioides.

Cattleya.—A well-known genus of extremely showy South American plants. Twenty-seven varieties were shown, Mr. Lee's plants, as also those shown by Mr. F. Sander, being in excellent condition. The most interesting were varieties of C. Mendelli, C. Mossiæ, and C. Wagneriana. C. Blunti was also very attractive, and some plants of C. citrina were much admired. This last-named species is quite anomalous in the group, resembling Epidendrum vitellinum in general appearance, but having the peculiar habit of growing head downwards; it also prefers a bare board or block of wood to compost of any other kind. Thirteen varieties of C. Mendelli were shown by Mr. Sander and others, some forms being gorgeously coloured on the lip; C. gigas, C. labiata pallida, C. nobilior, C. Percivaliana, C. Skinneri, C. Trianæ, C. Warneri, and others, were well-grown. The gems of the whole group, however, were a couple of plants of C. Skinneri alba, one from Kew, and the other, of which mention has already been made, being from Mr. Sander's collection.

CHYSIS.—Two species were shown, viz., C. bractescens, from Oaxaca, and C. Lemminghei, from Tobasco. The former has large, sweet-scented, ivory-white blossoms, the latter has smaller white flowers tipped with rosy purple blotches. Two hybrid kinds were also shown. C. Chelsoni is the result of a cross, effected between C. aurea × C. bracteata. Another Veitchian hybrid, named C. Sedeni, was also represented.

CIRRHOPETALUM.—This genus now forms a distinct sub-section of the Eastern Bulbophyllums, and are so exquisitely beautiful when closely examined that one regrets the more their rarity in our modern collections. C. fimbriatum, the only species represented, came from the Royal Gardens, Kew, and bore three-quarter whorls of purplish flowers on the apices of slender erect peduncles or scapes.

CŒLIA.—The only species of this genus shown was C. triptera, native of Jamaica and Cuba. It has several synonymes, such as C. Baueriana, C. glacialis, &c. It has erect spikes of rosy-coloured flowers.

CŒLOGYNE.—Of this well-known and highly popular Eastern genus eight species and varieties were exhibited. The white-flowered C. cristata, and its pale form, C. Lemoniana, were especially attractive. C. elata, C. ocellata var. maxima, and C. ochracea, were also represented by well-grown plants; but perhaps the most interesting were C. Parishii and C. pandurata, the latter having a green perianth and a curiously warted black lip shaped like a fiddle, hence its specific name. It is common on low jungle trees in the forests of Borneo, the other species shown being of Indian origin.

Colax.—C. Jugosus was represented by two examples, bearing wax-like flowers of an ivory whiteness, the petals and the trowel-shaped lip being richly barred and spotted with rich velvety purple markings. Nearly allied to the Maxillarias, and one of the most distinct and pleasing of its kind.

Cymbidium.—The two species shown were C. Devonianum, from the Khasia Hills, and C. giganteum var. Lowii, another Indian species, and a great favourite with collectors, as it blooms profusely, and its blossoms endure fresh for a period of ten or twelve weeks after their buds expand. The colouring is peculiar and attractive, the perianth being of a warm greenish-yellow, the boat-shaped lip being white with the central portion painted with cinnabar.

Keifersteinia.—A solitary species, K. graminea was shown an Orchid of considerable botanical interest, but not showy.

Lælia.—Twelve species and varieties were shown, the most beautiful being the several varieties of L. elegans, and L. Schilleriana. L. albida, whitish; L. autumnalis, rose-purple; L. bella, a rare and valuable variety already alluded to elsewhere; L. cinnabarina, L. purpurea alba, L. labiata and L. elegans. Walstenholmiæ were all staged in good condition.

Leptotes.—L. bicolor was the only species represented. It is a dwarf epiphytal kind, with terete channelled foliage, and bears showy white-petalled flowers, the lip being stained with rose colour or purple. This plant is now referred to the genus Tetramicra, which see in accompanying list.

Luddemannia.—A curious genus supposed to have a marked tendency towards a dwarfic habit. Its affinities are with Acineta or Peristeria.

Lycaste.—Three species only were shown, viz., L. gigantea, a strong-growing kind having greenish blossoms, the fuscous lip being fringed with longish hairs. L. plana and L. Skinnerii were also represented.

MASDEVALLIA.—This popular South American genus now numbers about one hundred species, of which nearly one-half, viz., forty-eight species and varieties, were shown on this occasion. The large and richly-coloured forms of M. Harryana were perhaps the most showy; there were also two fine forms of M. Veitchii, viz., gigantea and grandiflora. M. Shuttleworthii was also very attractive, as also were the great spider-like flowers of M. chimeræ. Perhaps the rarest and most interesting plant in this group was a tiny specimen of the new M. racemosa (= M. Crossii), bearing erect spikes of vivid scarlet flowers. These neat-habited plants divide the honours of what are known as "Cool Orchids" with the genus Odontoglossum, and like them often have especial greenhouses devoted to their culture. Among the rarer kinds we noted M. amabilis, M. Armini, M. Backhouseana, M. civilis, M. Gaireana, M. Houlteana, M. psittacina, M. tridactylites, M. trichæte, M. trochilus, M. Wagneriana, and M. xanthina, all hearty and well grown.

MAXILLARIA.—The most remarkable species in this group was the new M. Sanderiana, elsewhere alluded to in this report. M. luteo-alba, M. triangularis, M. Turneri, M. Harrisonii, and M. triangularis were also represented in good condition.

MESOSPINIDIUM.—This genus, now more generally referred to Odontoglossum, was represented by M. sanguineum only, a bright rosy-flowered plant, not unlike the rare Odontoglossum roseum in general habit and colour of its flowers.

MEGACLINIUM.—A small genus of African Orchids, interesting as being representative of the Eastern bulbophylls. The small dark purple or brownish flowers are borne on a curious wavy-margined leaf-like spike. The plant exhibited came from Mr. R. Lindsay, Curator of the Royal Botanical Gardens, Edinburgh.

ODONTOGLOSSUM.—Of all the cool growing or temperate Orchids, those of this group are now the most in favour with amateur cultivators, and without a doubt O. Alexandræ is to-day the most popular of all Orchidaceous plants whatever, it being grown literally by the million in this country. Among the sixty-six species and varieties shown at the Conference, the following seemed especially worthy of extended notice: Mr. J. T. Peacock sent a well-grown specimen of O. Wilckeanum, which may be best described as a pale-coloured form of O. luteo purpureum, having narrow yellow-fringed petals blotched with chocolate-brown markings. A plant marked O. hybrid (?) reminded one of O. Lindleyanum (= O. epidendroides) or of O. Wallisii, having a pale yellow starry perianth with blotches of a reddish-brown colour. In Mr. Peacock's group I also noted O. Hallii, from the Lloa Valley; O. Hallii xanthoglossum, from Ecuador; and typical O. luteo purpureum, from New Granada; these, together with the O. Wilckeanum above mentioned, forming a most interesting group, showing some of the most marked variations of a single species under different geographical conditions.

O. hebraicum, also from Mr. Peacock, reminds one of O. nævium majus in habit of growth and inflorescence, but the flowers are larger, of a more creamy-yellow hue, the sepals being dotted with reddish-brown in a linear manner. It is quite possible that this plant represents O. nævium majus in the upland districts of Columbia, where it is found growing wild.

O. Andersonianum is a well-known and one of the most beautiful forms or varieties of what we now call O. Alexandræ (Bateman), but which the late Prof. Lindley had previously named O. crispum. It is rather singular that Lindley, in describing the colour of the flower, says that it is *yellow*, so, that either he was misled by the dried specimen which he had before him, or, as might be quite possible, he really had a yellow-flowered variety. When Weir and Blunt first found O. Alexandræ, and sent home living plants, all the varieties were white, and the yellow varieties, or so-called hybrids, did not appear for some years after the first introduction of this now popular species. O. Andersonianum may be taken as a typical yellow O. crispum, some of its forms being suffused with pink on pale cream-coloured grounds, the sepals and petals being more or less spotted with reddish-brown markings. It is a native of New Granada. O. Ruckerianum, another typical form of O. crispum, is similar to O. Andersonianum, but the sepals and petals are copiously suffused with rosy-purple or lake colouring, their margins being whitish and elegantly crimped; but there can be no doubt but that these two forms are united by intermediates. O. Ruckerianum punctatissimum differs from the typical form in having a profusion of dots instead of well-marked spots or blotches.

Mr. Pollett's form of O. Ruckerianum, a very beautiful one, was remarkable, inasmuch as the spots assumed a bar-like arrangement on the sepals. His O. Andersonianum superbum again had buff-coloured sepals and petals, suffused with pink and with dark red markings. O. Alexandræ Bonnyana is a large, broad-petalled variety, white, with pink-flushed sepals and petals, the sepals only having one large cinnabar blotch situated at a point about two-thirds of their length from the ovary.

O. polyxanthum came from several exhibitors, and at first sight looks like a paler, less heavily-blotched O. triumphans. Some, however, believe it to be of hybrid origin, and O. triumphans × O. maculatum or O. nebulosum have been suggested as possibly its parents. O. triumphans is a native of Peru, however, while O. nebulosum is from Mexico, as is also O. maculatum, so that I prefer here to consider O. polyxanthum as merely a geographical form of O. triumphans. The flowers really resemble typical O. triumphans in form and size, the bases of the perianth divisions being clear yellow, petals dotted or lined, the sepals only being heavily blotched with dark red brown; the cordate lip is crimson-brown, margined with creamy yellow. This description is from Mr. Duke's specimen.

O. sceptrum reminds one of a short-perianthed form of O. luteo purpureum, having flowers only about half the size, colour yellow, blotched with brown, a native of Colombia. Mr. Lee showed a pale-flowered variety. Mr. Duke had a pale form of O. crispum, resembling O. hebraicum, but the flowers were less copiously spotted than is usually the case in that variety. Mr. Smee had a fine pink flowered O. Alexandræ, of which the petals were profusely dotted in the centre, the sepals less so, the lip being pure white with a golden crest, its lower or apical portion being blotched with chocolate. O. Alexandræ var. guttatum seems intermediate between O. Andersoniaum and O. hebraicum. Messrs. Sander, of St. Alban's, had a fine series of O. crispum (yellow grounds) and O. Alexandræ (white grounds), among which were many of the reputed hybrid forms. Both the yellow and the white forms varied much in breadth of perianth segments, and in depth, size, and variety of marking. In one variety the yellow colouring matter is emphasised, or focussed, as it were, in a rich golden lip-crest, while in another the red colouring comes out either as blushing perianth segments, or in the form of red spots or blotches. Looking at this bank of imported plants, it was at once apparent that the sooner we cease naming them in

Latin the better. No two forms were alike, and those exhibited proved very conclusively that there is a sliding scale of varieties between even the most distinct and remarkable of the named kinds. It is convenient in gardens to have some ready means of distinguishing these beautiful forms, but it is quite clear that the varieties of Odontoglossum crispum are not more deserving of Latin varietal names than are the numerous wild forms of *Anemone coronaria* or *Ranunculus asiaticus.* Mr. Lee had some fine broad-petalled forms of O. Alexandræ, and a good plant of O. crispum Jenningsianum, which reminds one of O. Ruckerianum. This plant was also represented in the Sanderian collection. O. Alexandræ var. Chestertonii, also from Mr. Lee, had white sepals and petals, the latter with heavy chocolate spots, the sepals being barred with the same colour. Mr. Brymer had a very showy variety of O. Alexandræ, with its sepals and petals suffused with rosy-lake, the column heavily blotched with dark chocolate brown.

Perhaps, however, the gem of all the O. Alexandræ group is O. Cooksoni, which has white crisp-edged sepals and petals of medium breadth, each ornamented with two or three bold blood-red blotches. The markings on the sepals are bar-like. This variety has been illustrated in the "Orchid Album," and is to O. Alexandræ what O. Veitchianum is to O. Pescatorei, than which no higher praise can to-day be given.

In addition to those named above, the following species and varieties were shown: O. coronarium miniatum, O. citrosmum and its variety album, O. Uro-Skinneri, O. Pescatorei, O. Phalænopsis, O. coradinei, O. odoratum, O. hystrix, O. bictoniense, O. maculatum, O. cristatum, and others.

ONCIDIUM.—O. Marshallianum and O. macranthum were the most handsome of the kinds shown, but O. papilio (= the "Butterfly Oncid" of Demerara) attracted much attention, as, also, did the great panicled inflorescence of O. altissimum, O. sarcodes, O. sphacelatum, and the blotched and diadem-like O. serratum (= O. diadema). O. juncifolium is remarkable as belonging to the terete or onion-leaved section, which small group also comprehends the new O. Jonesianum, one of the most distinct and showy of new additions to this genus.

PANISEA.—Only one species, P. (Cœlogyne) uniflora, was shown. It is botanically interesting, but not showy.

PESCATOREI.—A small genus of leafy evergreen orchids, nearly related, indeed now generally referred, to Zygopetalum. P. Lehmanni, the only species represented, has showy, purplish flowers, with a curiously ridged disc on the lip.

PHAIUS.—Three species were shown, viz., P. maculatus, P. grandifolius var. Wallichii, and P. albus, the last-named being a deciduous-leaved plant, with elongated rod-like pseudo-bulbs, and now more generally called "Thunia alba" in gardens. All are well-known garden plants.

PHALÆNOPSIS.—These "Moth Orchids," as they are popularly called, comprise the very *élite* of the epiphytal Orchids, so far as beauty and graceful habit are concerned. Unfortunately, they are not easy to grow successfully many years together. Only four kinds were shown, viz., P. Parishii, a splendidly-grown plant from the Kew collection; P. Luddemannia, P. tetraspis, a rare novelty, with milk-white flowers; and, above all, the lovely rose-tinged variety of P. amabilis (the queen of Orchids), known as Sanderiana, a lovely plant from a little visited island of the Philippine Archipelago.

POLYSTACHYA.—A small genus of Orchids from the West Indian Islands, P. pubescens having erect spikes of yellowish flowers, the sepals being lined or streaked with purple. Kew.

PONTHIEVA.—Terrestrial South American herbs near Neottia. P. maculata, the species represented, has spotted leaves.

RENANTHERA.—A showy genus of Eastern epiphytes, near Vanda. R. coccinea, the species exhibited (not in bloom), comes from China, and bears large panicles of Indian red, yellow-barred flowers; a remarkable plant, well grown at Chatsworth and elsewhere.

RESTREPIA.—A most interesting little group of plants. R. antennifera, the plant shown, having yellow flowers dotted with purple and long antennæ-like petals.

SACCOLABIUM.—Only two species of this showy genus were represented, viz., S. retusum and S. ampullaceum, neither remarkable as showing good culture.

Scuticaria.—Curious plants, having singular thong-like leaves depending from the branch or block on which they grow. S. Hadwinii, named in compliment to one of the earliest of amateur Orchid growers at Liverpool, has yellow flowers barred with cinnabar, and is very showy.

Stelis.—Singular little plants with small and inconspicuous flowers. Nearly related to Pleurothalls and Masdevalls. S. muscifera has brownish-purple hairy or ciliated blossoms resembling small flies, hence its specific name.

Leptotes.—See Tetramicra.

Thunia.—See Phaius.

Trichopilia.—A showy genus of South American rock plants or epiphytes. T. coccinea was the only species shown. Flowers, dark reddish-crimson, with an open convolute Gloxinia-like lip.

Uropedium.—This genus, founded by Lindley, from a specimen discovered by M. Linden, is now generally supposed to be a pelariad form of Cypripedium caudatum, from which plant it differs only in having three anthers developed instead of two, and the lip, instead of being saccate or slipper like, is petaloid or strap shaped, attaining the same length as the long lace-like petals. Two well-grown specimens were exhibited in flower.

Vanda.—A well-known showy genus of Eastern epiphytes, which are great favourites in Orchid houses from their graceful and evergreen habit of growth. The sky-blue T. cœrulescens, and the white V. Denisoniana, were very lovely, as also were V. teres, and several well-bloomed plants of V. suavis, including Veitch's, Paterson's, and two or three other forms.

Warscewiczella.—A small genus, related to Huntleyas, Bolleas, Pescatoreas, and Zygopetalums. W. Wailesiana, with purplish flowers, was the only kind shown.

Zygopetalum.—A well-known Western genus of winter and spring-blooming Orchids, of which Z. Mackayi is the type, and Z. maxillare one of the best. The only plant now shown was the hybrid, Z. Sedeni, raised by the Messrs. Veitch, and alluded to elsewhere.

FIRST-CLASS CERTIFICATES WERE AWARDED BY THE FLORAL COMMITTEE TO THE FOLLOWING :—

To Sir TREVOR LAWRENCE, Bart, M.P., for

No. 1. *Luddemannia Lehmanni.*—This is a most remarkable plant, and is alluded to in Herr Reichenbach's communication. It is variable in its inflorescence, and allied to the Acinetas, the plant at the Conference bearing a couple of drooping spikes or racemes, the most prominent colour being of a rich old gold or orange hue. The bulbs are ovoid, slightly channelled; the leaves a foot long by about three inches in breadth. It is a plant extremely rare in collections.

To WM. LEE, Esq., Downside, Leatherhead, for

No. 2. *Cypripedium Godefroyæ.*—A remarkable dwarf-growing Lady's Slipper, recently introduced from Cochin China by M. Godefroy, of Augentieul, near Paris. In habit and in its marbled leafage it closely resembles C. niveum, but the flowers are more heavily dotted and blotched with purple on a white ground. The plant has been well figured in the *Garden* and also in the "Orchid Album," and is one of the most remarkable and showy of all the new kinds.

To Mr. BALLANTINE, Gardener to Baron Schröder, The Dell, Egham, for

No. 3. *Odontoglossum Alexandræ Veitchii.*—A strong-growing broad-petalled variety, of really first-class merit. The sepals and petals are snow-white, spotted distinctly with cinnabar brown, the lip being white with a rich yellow crest. It was certificated under the name of O. crispum Veitchii, but to avoid confusion, I have throughout this report used Lindley's name only for the varieties having a yellow ground colouring, and have in like manner reserved the name O. Alexandræ for such as have white grounds. If this plan were generally followed, both names would be employed rightly, so far as priority is concerned, and each name would possess a really distinctive meaning.

No. 4. *O. Alexandræ Sanderianum.*—A variety much admired by connoisseurs, and of great beauty. The sepals and petals are pure white, broad, and overlapping the rich cinnabar or reddish blotches covering the centres of the perianth segments and leaving only a narrow border of startling whiteness.

,, 5. *O. excellens.*—A very beautiful variety, possibly of hybrid origin. The sepals and petals are broad and firm, being of a creamy-white, or yellowish colour, spotted vividly with chestnut red.

,, 6. *Maxillaria Sanderiana.*—This was one of the most distinct of all the new species of Orchids shown. It resembles M. grandiflora somewhat, but is dwarfer, and more compact. The flowers are of ivory-like whiteness, bold and massive, and are marked with very dark maroon or crimson-bronze towards the bases of the sepals and petals.

To Mr. B. S. Williams, Upper Holloway, for

No. 7. *Masdevallia Harryana lateritia.*—A robust and free-growing variety of the well-known type, having flowers nearly half as large again, of exquisite form, and of the most pleasing shade of violet or amethyst-crimson. As seen in contrast with several other foms, it stood out as a great advance in form and vivid colouring.

To Messrs. Fred. Sander and Co., St. Albans, for

No. 8. *Cattleya Wagneriana.*—A robust plant of compact growth, with thick leathery leaves, and massive flowers. The sepals and petals are wax-like, and of great substance, being of glistening whiteness, except the throat of the involute lip, which is of a soft golden-yellow colour. It is quite an addition to a beautiful genus.

,, 9. *C. maxima Peruviana.*—A noble variety of a rare and beautiful species, which until quite recently has been a rarity in our collections. It is larger than the type, the sepals and petals being of good substance and fine form, the veined lip being of a rich amethyst-purple colour margined with rose, and this is emphasised by a narrow golden band running down the disc of the lip.

No. 10. *C. Suavissima Schroderiana.*—A vigorous-habited variety of the type, having pure white sepals and petals, the lip being enriched with purple markings in a very pleasing way. Named in honour of one of the most distinguished amateurs, an honour it richly deserves.

„ 11. *C. Bluntii.*—A distinct and handsome plant, named in compliment to a well-known collector of Orchids abroad. Although similar in some respects to C. Wagneriana, it is distinct enough on its own merits to deserve the award it obtained. It has larger expanded flowers, the sepals and petals being pure white, and the lip suffused with rose colour, having a rich gold blotch on the disc.

„ 12. *O. crispum Ruckerianium punctatissimum.*—A strong-habited variety having the creamy yellow flowers of the type, which are, however, as the name implies, more minutely dotted with cinnabar red markings.

Culture.

From a gardening point of view, "good cultivation" is a most important factor in a floral display of any kind. It is what the gardener travels about to see, and until quite recently it was to see his own big successes in this direction that the public paid for admission to our flower shows and gardens. After all it is a pleasant surprise that we cannot claim any superlative examples of the "elephantine" type for our Orchid Conference. For example, there was nothing like the six or seven fine specimens of *Odontoglossum vexillarium*, which were shown at the Paris Exhibition on May 20th, one of which bore two hundred flowers, and the whole group, as arranged in a large perforated iron vase, bore about five hundred blossoms; and a "made-up" plant of *Vanda teres* (also from the Rothschild gardens at Ferrières, over which M. Bergmann presides), bearing at least three or four hundred expanded flowers. Although we had no "made-up" specimens of this calibre at our Orchid Show, Mr. James Douglas, of the gardens at Great Gearies, has more recently exhibited before the Royal Horticultural Society a beautiful *bonâ fide* plant of *Odontoglossum vexillarium*, bearing two hundred flowers. But, on the other hand, we may point out that the general level of cultivation, as shown by the whole mass of Orchids at the Conference, was very high, and we selected the following for especial notice. But as a general list of amateur and trade exhibitors, with lists of the species shown by them, will be appended to this report, it is unnecessary that I should do more here than refer to their general excellence. The President of the Society, Sir Trevor Lawrence, Bart., Baron Schröder, Mr. Lee, The Duke of Devonshire, Mr. Peacock, Mr. Pollett, Mr. Southgate, Mr. W. Brymer, and Mr. Neville Wyatt, amongst other distinguished amateurs, had very remarkable collections of plants. Taking the exhibits generally, the *genera* best represented were Odontoglossum, Cypripedium, Dendrobium, Masdevallia, and the Cattleyas and Lælias.

From the Kew collection there was a well-flowered plant of *Epidendrum bicornutum*, a plant by no means easy to grow, and with it a remarkable specimen of the dwarf *Phalænopsis Parishii*, covered with its dainty white and purple flowers, also a well-bloomed *Cattleya Skinnerii alba*. Mr. De B. Crawshay exhibited a remarkably strong piece of *Cattleya gigas*, imported in September, 1884 bearing five flowers on its last made growth. From Chatsworth came a plant of the Chinese climbing Orchid *Renanthera coccinea*, about nine feet in height. As shown this splendid plant was not in bloom, but it is well known as being one of the very few plants of this species which—as its old flower spikes testified—has flowered regularly for the past ten or more years. At Chatsworth it is grown in the large conservatory on the trunk of a small birch tree, to the shining bark of which its thong-like roots firmly adhere. Messrs. Sander and Co. exhibited a remarkably fine plant of *Cattleya Skinnerii alba*, and this plant was sold by them at the Conference for two hundred and fifty guineas, a like sum having been realized by Messrs. Veitch for *Lælia bella* about the same time. It should be borne in mind, however, that these high prices represent to a great extent rarity rather than good culture alone. Some strong plants of *Odontoglossum Alexandræ*, well bloomed and representing fine variations, came from Mr. A. H. Smee's garden, at the Grange, Wallington, Surrey, and these identical plants were interesting as having been grown out of doors in a sheltered nook over a running stream for four months (*i.e.*, June to October) during 1884. The vexed questions with regard to the "pruning" and "manuring" of Orchids were not touched upon in a very decided manner, although a good pruned specimen, *Dendrobium nobile*, was exhibited; and at a previous meeting, on April 21st, of the Society, Mr. Prinsep showed a splendid example of *Dendrobium nobile*, which had been pruned by him. It had forty-eight growths all more or less leafy, and bore six hundred and thirty expanded flowers.

As to manures and their application, the consensus of opinion went to show that when used in solution and sprinkled sparingly on the floors and stages, the plants were generally benefited by their application, but that the direct application of solid or liquid manures to the compost in which epiphytal Orchids are grown is a dangerous proceeding, liable to cause serious injury.

ARRANGEMENT.

The six or seven hundred plants exhibited were arranged on tables down the centre of the great Conservatory, thus giving a vivid mass of colour amid the greenery afforded by the ordinary occupants, such as palms, ferns, dracænas, &c., of the place. Cut flowers of Orchids were not so abundant as one might have expected, seeing that many amateurs might thus have added to the interest of the exhibition without in any way risking the health of their plants. If another display of the kind is held, it is to be hoped that this point will be brought before growers who may reside at a distance, since the expenses of forwarding cut blooms is a mere trifle as compared with the carriage of the plants themselves.

As we have said, there were no "specimens" of the "elephantine" or flower-show type present, and this in itself, as we have already observed, was a subject for congratulation rather than for regret. It is to be sincerely hoped that the day of "made-up" specimen Orchids is over, and that in future we shall see *bonâ fide* single plants as grown only at our exhibitions. The bad habit of taking half-a-dozen small plants (more or less as the case may be) of Cattleya or Dendrobium, and "bedding them out" in a big tub of moss and then exhibiting what is really a group of plants as a "specimen," is a fraud so patent that the wonder is that custom has tolerated the practice so long. Fortunately, there was none of this kind of ingenuity at the Conference, and if, henceforth, the Royal Horticultural Society veto the thing and offer prizes for *bonâ fide* single plants, it will lead to a better state of things. After all, even in the case of *bonâ fide* specimen plants, mere size is not essential to true beauty; and instead of encouraging size only, we might do much better by offering prizes for the best and most artistic groups of Orchids arranged in banks of fresh green ferns, or other suitable foliage plants.

PAPERS READ AT THE CONFERENCE.

Professor H. G. Reichenbach, of Hamburgh, contributed a short but extremely interesting botanical paper, the first portion of which referred to the now interesting question of "Proliferous Orchid Roots." The second portion referred to the slowly increasing advent of "Three-lipped Orchids," and the third part to an erratic *Peristeria*, *Acineta*, or *Luddemannia*, with polymorphic and possibly bi-sexual flowers. Mr. Harry Veitch's paper on the "Hybridization of Orchids," and the President's felicitous speech, were the masterpieces of the whole proceedings, and the value of Mr. Veitch's paper was much enhanced by the clear illustrations and actual specimens by which it was accompanied. As this and other communications read will appear in type with this report, it is perhaps unnecessary that I should say more respecting them except to point out to practical gardeners, and more especially to the younger members of the craft, what a wide and open field there is around them for original observation, experiment, and research. Mr. O'Brien's paper on "The Cultivation of Orchids" also contains much valuable information. Perhaps his condemnation of the use of the syringe amongst Orchids was a little too sweeping, and the mention of particular firms or manufactories is always a questionable policy in papers of this description. The discussion which followed Mr. O'Brien's paper was mainly devoted to the praises of a new manure of no especial interest to us in this report. One little fact brought out, however, was the desirability of resting Orchids, especially when small or weakly, by removing their flower spikes either before or immediately after their flower-buds expand.

It is somewhat to be regretted that a paper dealing with the naming of Orchids was not read at the Conference, especially as all interested in the matter, whether botanists, amateurs or gardeners, are agreed that it is a subject demanding urgent attention. It is to be hoped, however, that another opportunity may arise at which some definite and practicable scheme for the naming of all garden varieties of Orchids and other plants may be proposed and adopted under the auspices of the Royal Horticultural Society. The one great step in advance made at the Narcissus Congress was the resolution to use Latin names for wild plants only, and to adopt popular English names for mere garden forms. Many of the Cattleyas and Odontoglossums, for example, are really not more distinct from each other than are seedling Narcissi, Primroses or Chrysanthemums, and to give mere garden hybrids and slightly different native or wild seedlings long Latin names only increases a confusion which is becoming unbearable. Seeing that some definite understanding must sooner or later be arrived at on this question, it seems almost a pity that this question of names was not the first subject brought before the Conference. At the last moment the subject was postponed in the hope that Professor Reichenbach, together with other botanists, might be induced at some future date to attend and settle the matter. The Editor of the *Gardeners' Chronicle* puts the whole matter "into a nutshell" as follows: "The subject of nomenclature was not only crowded out from a full programme, but it was wisely eliminated till such time as the great authority of Professor Reichenbach could be effectively brought to bear upon it."

It is one of the curious anomalies of our time that with all the facilities afforded by English gardens, and our two national *herbaria* combined, new or critical species of Orchids cannot be named in this country.

General Results.

If it be true that "the proof of a pudding is in the eating thereof," it will readily be granted that the good of a Conference consists of the results gained. In the present case we had decidedly the finest and best representative collection of Orchids brought together that has ever been seen in one place, or in other words a flower show quite unique of its kind. Visitors were enabled to see species and varieties of extreme rarity, beauty and value under the most convenient of conditions. The exhibition of materials and appliances for the culture of Orchids was also most instructive. All three of the papers read at the Conference, together with the opening speech of Sir Trevor Lawrence, Bart., form a most valuable contribution to horticultural literature, and to select only one example, viz., Mr. Veitch's paper on "Hybridization," it is without doubt the most interesting paper read before the Society during modern times. As to the discussions which as a rule follow the reading of papers, one need in this case say nothing, and as to the question of nomenclature nothing was attempted. It would not be fair to conclude a report of this kind without alluding to the generous manner in which the whole of the horticultural and daily press assisted the Conference by reporting and illustrating the proceedings in the most complete manner.

F. W. BURBIDGE, F.L.S.

DUBLIN,
July 6th, 1885.

ALPHABETICAL LIST OF THE GENERA OF ORCHIDS.

The following list has been compiled and re-arranged from Hooker and Bentham's "Genera Plantarum," vol. iii. pp. 460—636, and may be interesting to the numerous amateurs who cultivate Orchids. All the *genera* of Orchids recognised by the late Mr. Bentham are included, but only a proportion of the total number (334) is generally met with in cultivation; these are distinguished by being printed in black type. A few notes on culture and other matters of popular interest have been added, each genus being numbered consecutively from 1 to 334.

In the "Genera Plantarum" above cited will be found all the literary references necessary for the botanical student, together with many citations of plates and figures, which, from considerations of space, we are compelled to omit. The indications that are here supplied must therefore be considered as illustrative but not exhaustive. On the other hand, we have inserted references to the plates in the "Orchid Album," and to the full enumeration of cultivated species of a large number of the *genera*, as drawn up by Mr. Hemsley, in our columns, and also to most of the figures given in the *Gardeners' Chronicle*, but not cited in the "Genera." The * indicates that a figure will be found in the volumes of the *Gardeners' Chronicle*. F. W. BURBIDGE.

1. ABOLA, Lindley.
   A small-flowered epiphyte, of no beauty, from the Colombian Andes.

2. ACACALLIS, Lindley.
   One species, from Northern Brazil.

3. **Acampe**, Lindley.
   Eight or nine species, from India, China, South Africa, &c. This genus approaches Sarcanthus. Species not showy.

4. **Acanthephippium**, Blume.
   Three or four species, from India and the Malayan Archipelago. Flowers fleshy, on erect spikes, not very showy. See Bot. Reg., t. 1730, and 1846, t. 47; Bot. Mag., t. 4492. For list of species, see Gard. Chron., 1882, xviii., p. 565.

5. **Aceras**, R. Brown.
   One species, in Europe and North Africa. Rchb., Icon. Fl. Germanica, t. 357; Barla. Icon. Orch. Alp. Marit., t. 23.

6. ACIANTHUS, R. Brown.
   Seven species, from Australia, New Zealand, and New Caledonia. See Rchb. f., Xen. Orch., t. 187.

7. **Acineta**, Lindley.
   Eight species, from Colombia, Central America, and Mexico. Flowers resembling those of Peristeria, being fleshy, white, or yellow, and heavily spotted or dotted. Inflorescence pendulous, as in Stanhopea, —like which, the plants should be grown in baskets. See Bateman's Orch., Mexico and Guatemala, t. 8; Bot. Mag., t. 4156, 4203; Bot. Reg., 1843, t. 78; Gard. Chron., 1879, xi., 235.

8. ACRIOPSIS, Reinwardt.
   Three or four species, from Burmah and Malaysia. Not showy.

9. **Achrocæne**, Lindley.

One species, from the Sikkim Himalayas. See Gard. Chron., 1882, xviii., 428.

10. **Ada**, Lindley.

One species only known, from the Colombian Andes. It was first called *Brassia cinnabarina* by Lindley. Showy spikes of vermilion-tinted flowers. See Bot. Mag., t. 5435 ; Orchid Album, t. 53.

11. ADENOCHILUS, Hooker.

Two species only, from New Zealand and Australia.

12. **Aeranthus**, Lindley.

Two species, both from Madagascar. See Gard. Chron., 1879, xi., 235.

13. **Aerides**, Loureiro.

Ten to fifteen species are found in India, Malayan Archipelago, Philippine Islands, China, and Japan. Nearly all the species are showy and fragrant, and some are variable. See Orchid Album, t. 21, 116, 160; Bot. Mag., t. 4049, 4139, 4427, 4982, 5728, 5798. The following species are figured in the Gard. Chron. :—

*A. crassifolium, 1877, viii., 493.
*A. cylindricum, 1875, iii., 537.
*A. odoratum, 1845, 436.
*A. odoratum purpurascens, 1881, xvi., 597.
*A. quinquevulnera, 1845, 100.
*A. Schrœderi, 1880, xiii., 493 ; 1882, xvii., 341.

14. AGANISIA, Lindley.

Six species, from Tropical America. See Bot. Reg., 1840, t. 32.

15. **Agrostophyllum**, Blume.

Five or six species, from India and the Malayan Archipelago. For list of species see Gard. Chron., 1882, xviii., 812.

16. **Alamania**, Llave and Lexarza.

One species, from Mexico. See Gard. Chron., 1883, xix., 764 ; 1879, xi., 235.

17. ALTENSTEINIA, Humboldt, Bonpland, and Künth.

Twelve species are known, from the Andes of Tropical America.

18. **Amblostoma**, Scheidweiler.

Three species, from Brazil, Peru, and Bolivia. For list of species see Gard. Chron., 1883, xix., 660.

19. **Angræcum**, Thouars.

Twenty-five species are known, from Tropical and South-east Africa, Madagascar, Bourbon, and Mauritius. *A. sesquipedale* is the largest flowered of all Orchids, and also possesses the longest spur or nectary. *A. funale* is a rare leafless epiphyte, and the leaves of *A. fragrans* have been used as a kind of tea. *A. falcatum* is the most northern species, being found in Japan. See Orchid Album, t. 41, 162, 179; Bot Mag., t. 2097, 4159, 4295, 4370, 4761, 4782, 5113, 5170, 5589, 5624. The following species are figured in Gard. Chron.:—

*A. eburneum superbum, 1873, 217.
*A. Ellisii, 1875, iii., 277.
*A. fastuosum, 1885, xxiii., 533.
*A. funale, 1846, 135.
*A. Kotschyi, 1880, xiv., 693.
*A. Scottianum, 1880, xiv., 137; 1882, xvii., 342.
*A. sesquipedale, 1857, 253; 1873, 255; plant, 1874, 346.

20. **Anguloa**, Ruiz and Pavon.

Three species and several varieties are known, from Colombia and Peru. They are strong-growing plants, with the habit of Lycaste, and having great waxy flowers like Tulips, solitary, on scapes springing from the base of the pseudo-bulbs. See Bot. Mag., t, 4313, 4807, and 5384; Orchid Album, t. 19, 133.

21. **Anæctochilus**, Blume.

From ten to twenty species and varieties are in cultivation, and are mainly remarkable for the beauty of their foliage, which is velvet-like in texture, lined or suffused with golden, silvery, or bronzy lines. Borneo, Ceylon, India. See Bot. Mag., t. 4123, 5208; Bot. Reg., t. 2010.

22. **Ansellia**, Lindley.
One species, originally found on the stem of a Date Palm at Fernando Po, but two or three remarkable varieties have since been introduced. Tropical and South Africa. See Bot. Mag., t. 4965; Bot. Reg., 1844, t. 12; 1846, t. 30.

23. **Anthogonium**, Lindley.
Only one species known, from the Himalayas and Burmah. See Gard. Chron., 1882, xviii., 812.

24. Aphyllorchis, Blume.
Four or five species, native of India and the Malayan Archipelago.

25. **Aplectrum**, Nuttall.
One species, known in North America as the "Putty Root," and a near relative of the Corallorhizas.

26. Apostasia, Blume.
Four species, native of India, Malayan Archipelago, and Australia. Not showy, but of special interest to botanists.

27. Appendicula, Blume.
Species twenty, from Malacca, Malayan Archipelago, and Pacific islands. Not showy.

28. **Arachnanthe**, Blume.
Six species, from Malaysia and the Himalayas. *Vanda Lowii* and *V. Cathcartii* have been included in this genus, which approaches Renanthera and Vanda. See Bot. Mag., 5475, 5845.

29. **Arethusa**, Linnæus.
One species, found in North America and in Japan. See Bot. Mag., t. 2204; Bot. Reg., 1072.

30. Argyrochis, Blume.
One species, from Java.

31. Arnottia, A. Richard.
Two species only known, from Mauritius.

32. **Arpophyllum**, Llave and Lexarza.
About six species, from Mexico, Central America, and Jamaica. When well grown they are distinct and

showy, fine examples having formerly been exhibited. For list of species see Gard. Chron., 1881, xvi., 428; 1879, xi., 235.

33. **Arundina**, Blume.
Five to ten species, from India, Malayan Archipelago, and South China. Of reed-like habit, with showy flowers, the Arundinas represent the Sobralias of the Western Hemisphere. See Orchid Album, t. 139. For list of species see Gard. Chron., 1880, xiv., 636.

34. **Aspasia**, Lindley.
Five or six species, from Brazil and Central America. See Gard. Chron., 1879, xi., 235; Bot. Mag., t. 3769, 3962; Bot. Reg., t. 1907.

BARKERIA (see Epidendrum), Gard. Chron., 1879, xi., 235; Orchid Album, t. 148.

*B. elegans (cyclotella), Gard. Chron., 1872, xiii., 80, 235. See Bot. Mag., t. 3818.

35. BARTHOLINA, R. Brown.
One species, from South Africa.

36. BASKERVILLEA, Lindley.
One species, wild in Peru.

37. **Batemannia**, Lindley.
One species, from Guiana. See Gard. Chron., 1879, xi., 235, Bot. Mag., t. 3818.

*B. meleagris, Gard. Chron., 1881, xvi., 209.

38. BICORNELLA, Lindley.
Two species, from Madagascar.

39. **Bifrenaria**, Lindley.
About ten species, from Guiana and Colombia. See Bot. Mag., t. 2789, 2927, 3597, 3629; Bot. Reg., t. 879, 1566, 1875; 1839, t. 12.

40. BIPINNULA, Jussieu.
Three or four species, from South America, outside the tropical limits. Not showy.

41. **Bletia**, Ruiz and Pavon.
About twenty species, from Tropical America, China and Japan. *B. hyacinthina*, *B. Sherrattiana*, and one or

two others are showy. See Bot. Mag., t. 3736; Bot. Reg., 1847, t. 60. For list of species, see Gard. Chron., 1882, xviii., 681; see also Gard. Chron., 1879, xi., 236.

Bollea (Zygopetalum).

*B. Patinii, Gard. Chron., 1875, iii., 9.

Bolbophyllaria (see Bulbophyllum), Gard. Chron., 1879, xi., 236.

42. **Bonatea**, Willdenow.

Two or three species are known, from South Africa. See Bot. Mag., t. 2926.

43. **Brachionidium**, Lindley.

Three species from Colombia and Bolivia. Epiphytes, nearly related to Masdevalls and Pleurothalls. See Gard. Chron., 1881, xvi., 172.

44. Brachtia, Reichenbach f.

Three species, from Colombia.

45. Brachycorythis, Lindley.

Four or five species, from South and Tropical Africa.

46. **Brassavola**, R. Brown.

About twenty species, from Tropical America and Mexico. Epiphytes, with terete foliage, except *B. glauca* and *B. Digbyana*. Flowers white and showy. See Gard. Chron., 1879, xi., 236; Bot. Mag., t, 543, 2878, 3229, 3722, 3761, 3782, 4021, 4734; and Bot. Reg., t. 1465, 1561, 1914; 1839, t. 5; 1840, t. 39.

*B. stricta, fruit of, Gard. Chron., 1885, xxiii, 85, 505.

47. **Brassia**, R. Brown.

About twenty species are known, from Tropical America, Brazil, and Mexico. Flowers greenish, spotted with brown, in spikes like Odontoglossum. See Orchid Album, t. 152; Gard. Chron., 1879, xi., 236; Bot. Mag., 1691, 3451, 3577, 3794, 4003, 5748; Bot. Reg., t. 832, 1754; 1841, t. 18; 1847, t. 29.

48. **Bromheadia**, Lindley.

Two species, native of Malacca and the Malayan Archipelago, forming reed-like growth in wet jungle. Showy, but not easy to grow. See Bot. Mag., t. 4001.

49. **Broughtonia**, R. Brown.

Three or four species, from Jamaica and the West Indian Islands. Sun-loving epiphytes, growing best on bare blocks. See Bot. Mag. t. 3076, 3536; Loddiges, Bot. Cab., t. 793.

50. BROWNLEEA, Harvey.

Three or four species, from South Africa, related to Disa.

51. **Bulbophllyum**, Thouars.

Eighty or a hundred species are known, from India, Malayan Archipelago, Tropical Africa, Australia, New Zealand, and South America. Very few are showy, but all are interesting. In the Eastern Tropics these plants take the place of the Western Masdevallias. Some Sarcopodia and other *genera* are now placed under Bulbophyllum. For list of species see Gard. Chron., 1882, xviii., 52, 104, 172. See Bot. Mag., t. 4532, 5408 (Sarcopodium), 3605, 4088, 4166, 4267, 5050, 5288, 5309, 5316, 5329, 6119, &c.

Burlingtonia; see Rodriguezia, Orchid Album, t. 18.

52. BURNETTIA, Lindley.

One species, from Tasmania, resembling Caladenia, but of different habit. Not showy.

53. CALADENIA, R. Brown.

Thirty or forty, in Australia and New Zealand. Not showy.

54. **Calanthe**, R. Brown.

About forty species, widely distributed. Japan, Pacific Islands, New Caledonia, Madagascar, Tropical and South Eastern Africa, Central America, Mexico, and West Indies. *Limatodes rosea* is now placed in this genus. See Orchid Album, t. 31, 134. For list of species see Gard. Chron., 1879, xi., 267; 1883, xix., 636; Bot. Mag., t. 2615, 4541, 4671, 5042, 5375, 6104 (Styloglossum), 4704, 5312.

55. CALEANA, R. Brown.

Three species, from South Australia.

56. **Calostylis**, Blume.

One species only, from Java. See Gard. Chron., 1882, xviii., 812.

57. CALOCHILUS, R. Brown.

Three species known, in Eastern Australia. See Fitzgerald's Aust. Orchids, and Bot. Mag., t. 3187.

58. **Calopogon**, R. Brown.

Four or five species, from North America. See Bot. Mag., t. 116; Sweet, Brit. Fl. Gard., t. 115.

59. **Calypso**, Salisbury.

One species, broadly distributed in North Europe, Asia, and in North America.

*C. borealis, 1881, xvi., 656.

60. **Camaridium**, Lindley.

About twelve species, in Colombia, Guiana, and elsewhere in Tropical America. See Gard. Chron. 1879, xi., p. 267.

61. CAMPYLOCENTRON, Bentham.

Fifteen species, from Brazil and West Indian Islands.

62. **Catasetum**, L. C. Richard.

Forty to fifty species, including Myanthus and Monachanthus, principally Brazilian and Mexican. The group is curious, as showing an approach to a diœcious development. Although not bright in colour these plants were formerly much grown. See Gard. Chron., 1879, xi., 267; Bot. Mag., t. 2559, 3262, 3329, 3514, 3590, 3802, 3823, 3923, 3929, 3937, 3942, 4017, 4792, 5202, 5399; Orchid Album, t. 83.

*C. incurvum, Gard. Chron., 1855, 4.

C. scurra, Gard. Chron., 1877, vii., 305.

63. **Cattleya**, Lindley.

About twenty species, and varieties innumerable, are known from, principally, Brazil and Mexico. Cattleyas and Lælias are the most showy of all Orchids. For one specimen of *C. Trianæ var. Leeana* 250 guineas were paid, and several other varieties, such as *C. Dodgsoni*, *Osmani*, &c., have brought nearly as large a sum. The best known and most ornamental are *C. labiata*, *C. Mossiæ*, *C. Mendelii*, *C. Trianæ*, *C. gigas*, *C. Dowiana*, *C. Gaskeliana*, *C. Percivaliana*, *C. Lawrenciana*, &c. See Orchid Album, t. 3, 6, 26, 33, 45, 69, 81, 84, 108, 112, 115, 121, 125, 144, 150, 154, 166, 178, 184; Bot. Mag., t. 2851, 3265, 3669, 3693, 3742, 3998, 4083, 4085, 4270, 4902, 4909, 4916, 5032, 5039, 5048, 5150, 5504, 5618, 5683. For figures, see Gard. Chron. as under:—

*C. Acklandiæ, fruit of, 1885, xxiii., 544.
*C. amethystoglossa var. sulphurea, 1866, 315.
*C. dolosa, 1876, v., 430, 431.
*C. Dowiana, fruit of, 1885, xxiii., 501.
*C. fausta, 1873, 290.
*C. fausta var. radicans, 1873, 290.
*C. gigas, 1874, ii., 617; 1880, xiv., 269; 1882, xvii., 343.
*C. gigas Sanderiana, 1883, xx., 401.
*C. Lawrenceana, 1885, xviii., 374, 375.
*C. lobata, 1848, 403.
*C. maxima, 1884, xxii., 620
*C. Mossiæ, 1883, xx., 533.
*C. nobilior, 1883, xix., 729.
*C. Percivaliana, 1884, xxi., 181.
*C. pumila, a monster, 1854, 804,
*C. Reineckiana, 1884, xxii., 173.
*C. Sanderiana, 1883, xx., 401.
*C. Skinneri, a monster, 1884, xxi., 548.
*C. velutina, 1872, 1259.
*C. Warneri, 1883, xx., 369.

64. CENTROPETALUM, Lindley.

Five or six species, from the Andes of Colombia. The pretty little Nasonia is now placed here.

65. **Cephalanthera**, L. C. Richard.

One of the few world-wide *genera* of Orchids. About ten species are known.

66. CERATANDRA, Ecklon.

Seven or eight species are known from South Africa.

67. **Ceratostylis**, Blume.

About fifteen species, from India, Malaysia, and the Pacific Islands. For species, see Gard. Chron., 1882, xviii., 812.

68. CHEIRADENIA, Lindley.
One species only known, from Guiana.

69. CHEIROSTYLIS, Blume.
Eight species known, from India, Malayan Archipelago, and Tropical Africa.

70. CHILOGLOTTIS, R. Brown.
Six species, from Australia and New Zealand.
CHLOIDIA (see Corymbia), Gard. Chron., 1879, xi., 267.

71. CHLORÆA, Lindley.
Eighty or more species are known, from South America, Chili being the head-quarters of the group.

72. CHLOROSA, Blume.
One species only known, from Java.

73. **Chondrorhyncha**, Lindley.
One or two species only known, from Colombia.

74. CHRYSOCYCNIS, Reichenbach f.
One species only known, from New Granada.

75. **Chrysoglossum**, Blume.
Three or four species, from Malayan Archipelago and Sikkim. See Gard. Chron., 1882, xviii., 428.

76. **Chysis**, Lindley.
Six or eight species known, from Mexico and Colombia. *C. bractescens* and others are showy, with large waxy flowers in spikes from young growth. For list of species see Gard. Chron., 1879, xi., 267; 1882, xviii., 746; Bot. Mag., t. 3617, 4576, 5186, 5265.
*C. Chelsoni, Gard. Chron., 1880, xiii., 717.

77. CHYTROGLOSSA, Reichenbach f.
Two species known, from Brazil.

78. **Cirrhopetalum**, Lindley.
About thirty species, from India, Malaysia, China, and Madagascar. Some of the species are very beautiful, but are now but rarely met with in collections. For list of species, see Gard. Chron., 1882, xviii., 172, 364.

79. CIRRHÆA, Lindley.
Five species from Brazil. See Gard. Chron., 1879, xi., 267.

80. CLEISOSTOMA, Blume.
Fifteen species, from India, Malayan Archipelago, and Tropical Australia.
CLEISTES (see Pogonia), Gard. Chron. 1879, xi., 267.

81. **Clowesia**, Lindley.
One species, from Brazil.

82. COCHLIODA, Lindley.
Six species, from the Andes of South America.

83. **Cœlia**, Lindley.
Four or five species, from the West Indies, Central America, and Mexico. See Orchid Album, t. 51. For species, see Gard. Chron., 1882, xviii., 428; see also Gard. Chron., 1879, xi., 267.
CŒLIOPSIS, Gard. Chron., 1872, 9; 1879, xi., 267.

84. **Cœlogyne**, Lindley.
About fifty species are known, from India, Malayan Archipelago, and the South of China. Many species are in cultivation, *C. cristata* and its varieties being extremely popular. The Pleiones, or "Indian Crocus," now included here, are much grown for their beauty. See Orchid Album, t. 54, 63, 143. For species, see Gard. Chron., 1883, xix., 46, 576.
*C. brunnea, 1848, 71.
*C. cristata, 1877, vii., 597.
*C. Massangeana. (Supplementary sheet, March 18, 1882.)
COHNIA, Gard. Chron., 1879, xi., 297.
COLAX (see Lycaste), Gard. Chron., 1879, xi., 267.

85. **Collabium**, Blume.
Two species, one from Java, and the other is Bornean. See Gard. Chron., 1882, xviii., 428.

86. **Comparettia**, Pœppig and Endlicher.
Two species, from the Andes of South America. See Gard. Chron., 1879, xi., 276; Bot. Mag., t. 4980; Bot. Reg., 1838, t. 68; Orchid Album, t. 65.

87. **Corallorhiza**, R. Brown.
Ten or twelve specimens are known, but widely distributed in Europe, Temperate Asia, North America, and Mexico. See Gard. Chron., 1879, xi., 267.

88. **Coryanthes**, Hooker.
Four or five species, from Tropical South America. See Orchid Album, t. 98; Gard. Chron., 1879, xi., 267; Bot. Mag. (Gongora), t. 2755, 3747; Bot. Reg., 1841, t. 1793.
*C. elegantissima (as macrantha), 1882, xvii., 593, 597.
*C. maculata var., sections of, 1885, xxiii., 144, 145.

89. CORYCIUM, Swarz.
Ten species, from South Africa.

90. CORYMBIS, Thouars.
Six or seven species, broadly distributed in the Tropics.

91. **Corysanthes**, R. Brown.
Fifteen species, in Australia, New Zealand, and in Malayan Archipelago. See Bot. Mag., t. 5357.

92. **Cottonia**, Wight.
Two or three species, from India and Ceylon. *C.* (*Vanda*) *peduncularis* is the type.

93. **Cranichis**, Swarz.
About twenty species, from the Andes, Tropical South America, Mexico, and West Indies. See Gard. Chron., 1879, xi., 268.

94. CREMASTRA, Lindley.
One species, from Japan.
CRYBE (see Arethusa), Gard. Chron., 1879, xi., 268.

95. **Cryptarrhena**, R. Brown.
Species two, one from Central America, and the other from the West Indies. See Gard. Chron., 1879, xi., 268.

96. CRYPTOCENTRUM, Bentham.
Only one species known, from Ecuador.

97. **Cryptochilus**, Wallich.
Two species, from the Himalayas. See Gard. Chron., 1882, xviii., 812.

98. CRYPTOPUS, Lindley.
One species, from Madagascar, resembling Angræcum.

99. CRYPTOSTYLIS, R. Brown.
Species seven, from India, Malayan Archipelago, and Australia.
*C. longifolia, Gard Chron., 1885, xxiii., 275.

100. **Cycnoches**, Lindley.
The "Swan Orchid." Eight species, from Guiana and Mexico. See Bot. Mag., t. 3855, 4054, 4213; Gard. Chron., 1879, xi., 268; Bot. Mag., t. 3855, 4054, 4215.
*C. Warscewiczii, 1879, xii., 493.

101. **Cymbidium**, Swarz.
Thirty species, from India, Malayan Archipelago, and South China. *C. eburneum*, *C. Mastersii*, *C. giganteum*, and its variety *Lowii*, are often met with in collections. See Orchid Album, t. 25, 140, 170; Bot. Mag., t. 387, 1751, 4884, 4907, 5126, 5457, 5574, 5710, 5851.
*C. eburneum, 1884, xxii., 499; 1884, xxii., 77.
*C. Lowianum, 1879, xi., 405.

102. CYCNORCHIS, Thouars.
Twelve species, from Tropical Africa and Madagascar.

103. CYPERORCHIS, Blume.
Two or three species, from India and Malayan Archipelago. Near Cymbidium.

104. **Cypripedium**, Linnæus.
Forty species, widely distributed in Europe, Asia, and America. The South American species have been called Selenipedium. Many hybrids have been raised in gardens. *C. caudatum* and its abnormal form, *Uropedium*, are very remarkable. They are the "Lady's Slipper" Orchid of gardens, and the most beautiful North American species (*C. spectabile*) is called the "Mocassin Flower." See Orchid Album, t. 8, 22, 36, 70, 86, 88, 109, 119, 122, 136, 155, 177; Gard. Chron., 1879, xi., 268; Bot. Mag., t. 192, 216, 911, 2938, 3024, 5855, 5349, 5508, 5791, 5922, 6175, 6296, 6432, 6490.
*C. Ashburtoniæ, 1879, xi., 16.
*C. calceolus, 1879, xi., 813.
*C. caudatum, 1875, iii., 211.
*C. caudatum, fruit of, 1885, xxiii., 472.
*C. concolor, 1865, 626; 1883, xix., 18.
*C. Druryi, fruit of, 1885, xxiii., 472.
*C. hirsutissimum, fruit of, 1885, xxiii., 472.

*C. Maulei, 1882, xviii., 716.
*C. punctatum violaceum, 1882, xviii., 717.
*C. Japonicum, 1875, iii., 625.
*C. lævigatum, 1865, 914.
*C. Lawrenceanum, 1880, xiii., 776.
*C. Lowii, 1847, 765 ; 1850, 215.
*C. niveum, 1883, xix., 18.
*C. occidentale, 1877, vii., 725.
*C. Parishii, 1869, 814.
*C. pubescens, 1883, xix., 785.
*C. selligerum, 1880, xiii., 776.
*C. spectabile, 1877, viii., 689.
*C. Spicerianum, 1880, xiii., 41.
*C. Stonei, a monstrous, 1883, xx., 73.
*C. Stonei var. platytænium, 1867, 1118.
*C. vexillarium, 1880, xiii., 781.
CYRTOPERA (see Cyrtopodium), Gard. Chron., 1879, xi., 268.

105. **Cyrtopodium**, R. Brown.
Twenty species are known, in Asia, Africa, and Tropical America. See Gard. Chron., 1879, xi., 268; Bot. Mag., t. 1800, 3507.

106. CYRTOSTYLIS, R. Brown.
Three or four species, wild in Australia and New Zealand. See Fitzgerald, Aust. Orch., with plate.

107. CYSTORCHIS, Blume.
Two species, from the Malayan Archipelago.

108. **Dendrobium**, Swarz.
Over 300 species, and many varieties are known, from India, Malayan Archipelago, Ceylon, Japan, China, and Australia. Several hybrids have been raised. See Orchid Album, t. 13, 20, 38, 42, 92, 99, 103, 113, 141, 152, 165, 174; Bot. Mag., t. 3608, 5249, 4619, 5430, 5537, 5285, 5444, 5459, 5540, 5956, 5968, 6013, 6226, 6383, 4993, 5482, 5515, 5679, 5825, 6007, 6050, 6199, 6319, 6438. For full list of species see Gard. Chron., 1881, xvi., 624, 688; 1882, xvii., 18, 26, 306, 471, 528, 641, 735, 776, 799.
*D. Ainsworthii, hybr., 1874, i., 443.

*D. Ainsworthii, 1874, i., 443; 1877, viii., 166; 1881, xvi., 624.
*D. amœnum, 1875, iii., 305; 1881, xvi., 625.
*D. Bensonæ, 1878, x., 817; 1884, xxii., 145.
*D. Brymerianum, 1879, xi., 475; 1881, xvi., 689.
*D. d'Albertisii, 1878, x., 217.
*D. densiflorum, 1882, xvii., 737.
*D. formosum giganteum, 1882, xvii., 369.
*D. formosum giganteum, fruit of, 1885, xxiii., 472.
*D. heterocarpum, fruit of, 1885, xxiii., 472.
*D. Leechianum, 1882, xvii., 256.
*D. luteolum chlorocentrum, 1883, xix., 340.
*D. nobile, 1872, 732; 1879, xi., 565.
*D. rhodostoma, fruit of, 1885, xxiii., 472.
*D. speciosum Hillii, 1877, vii., 113.
*D. superbiens, 1878, i., 49.
*D. thyrsiflorum, 1877, vii., 653; 1881, xv., 463.
*D. tortile, 1847, 797.
*D. Wardianum, 1877, viii., 240.

109. **Dendrochilum**, Blume.

Nine or ten species are known, from the Philippines and other groups in the Malayan Archipelago. They are extremely graceful little epiphytes, and three or four species are now common in collections. For species see Gard. Chron., 1882, xviii., 427.

110. DENDROPHYLAX, Reichenbach f.

Three species, wild in the West Indies, and resembling Angræcum. See Bot. Mag., t. 4295.

111. **Diacrium**, Lindley.

Four species, wild in Guiana, Mexico, and other parts of Central America. See Bot. Mag., t. 3332 (as an Epidendrum); Gard. Chron., 1883, xix., 764.

112. **Diadenium**, Pœppig and Endlicher.

Two species, from Peru and Para. See Xenia Orch., i., 13, t. 6; Saunders' Ref. Bot., t. 84; Gard Chron., 1879, xi., 268.

113. **Dichæa**, Lindley.

Twelve species are known, from Mexico, Central America, and the West Indies. See Gard. Chron., 1879, xi., 268.

114. **Dignanthe**, Lindley.
One species, wild in Mexico. See Gard. Chron., 1879, xi., 268.
DINEMA (see Epidendrum), Gard. Chron., 1879, xi., 268.

115. **Diothonea**, Lindley.
Four species, from the Andes in Peru and Colombia. Gard. Chron., 1883, xix., 700.

116. DIPLOCENTRUM, Lindley.
Two or three species known, from India.

117. DIPLOMERIS, Don.

118. DIPODIUM, R. Brown.
Six species, from the Malayan region, Australia, and the Pacific Isles. See Bot. Reg., t. 1980; Paxt., Mag. Bot., xvi., p. 321 (as Wailesia).

119. **Disa**, Berg.
Fifty species of Disa are wild in Southern and Tropical Africa, and in Madagascar, but only one species (*D. grandiflora*) is common in gardens, being one of the most beautiful of all terrestrial Orchids. Known to us from the Southern Hemisphere, *Cypripedium spectabile* being the belle of the Northern one. See Bot. Mag., t. 4073, 4091, 6529, 6532,; Bot. Reg., t. 324, 926; Harvey, Thes. Cap., t. 41, 84, 86.
*D. grandiflora, Gard. Chron., 1875, iii., 441; 1882, xviii., 521.

120. DISPERIS, Swarz.
Twenty species known, from India, Tropical Africa, South Africa, and Madagascar. See Harvey's Thes. Cap., t. 106, 148, 171, 172.

121. DIURIS, Swarz.
Fifteen species, all wild, in Australia. See Fitzgerald Aust. Orch., with two plates; Bot. Mag., t. 3156, 6201.

122. DORITIS, Lindley.
Five or more species, from India and the Malayan Archipelago. Some species have been referred to Dendrobium, others to Aerides and to Phalænopsis.

123. DOSSINIA, Morren.
One species known, from Borneo.

124. **Drakea**, Lindley.

Three species known, from Australia; *vide* Rchb. f., Xenia Orch., t. 189.

*D. elastica, Gard. Chron., 1848, 424.

125. **Drymoda**, Lindley.

One species, from the Malayan Peninsula. See Bot. Mag., t. 5905; Gard. Chron., 1882, xviii., p. 427.

126. **Erina**, Lindley.

Six or eight species known, from New Zealand and the Pacific Islands. See Gard. Chron., 1882, xviii., 812.

127. **Elleanthus**, Presl.

Fifty species, from Tropical America, Brazil, Central America, and the West India Islands. See Gard. Chron., 1879, xi., 334; 1883, xix., 659.

128. **Epiblema**, R. Brown.

One species, from South West Australia and New Zealand.

129. **Epidendrum**, Linnæus.

Above 400 species are described, from Tropical America, extending as far north as Texas, where one species exists on trees of *Magnolia glauca*. A large proportion are fragrant, but with dingy white or greenish flowers. *E. vitellinum*, *E. nemorale*, *E. bicornutum*, and many others are, however, showy and generally cultivated. *E. cochleatum* and *E. fragrans* were the first epiphytal Orchids to flower in the Royal Gardens at Kew. See Orchid Album, t. 4, 74, 149, 157, 161. For full list of species see Gard. Chron., 1879, xi., 334, 367. See also Gard. Chron., 1883, xx., 42, 152, 204, 244, 477, 573, 606, 634; Bot. Mag., t. 2831, 3013, 3534, 3557, 3631, 3638, 3765, 3885, 3898, 4067, 4094, 4107, 4572, 4606, 4784, 533, 5491, 5664, 6098, &c.

*E. Endresii, Gard. Chron., 1885, xxiii., 504.

130. **Epipactis**, R. Brown.

Ten or more species are known, and are widely distributed in Europe, Asia, and America, outside tropical limits. See Gard. Chron., 1879, xi., 433.

*E. latifolia var., 1852, 532.

131. EPIPOGUM, Gmelin.

Two species, from Temperate Europe and Asia.

132. EPISTEPHIUM, Künth.

Six species, from Tropical South America. See Bot. Mag., t. 5485.

133. **Eria**, Lindley.

Eighty species, from India, South China, and the Malayan Archipelago. They are mostly weedy in habit, and produce inconspicuous flowers. For full list of species see Gard. Chron., 1882, xviii., 468; Bot. Mag., t. 3605, 4163, 5391, 5415, 5807, 5910.

*E. flava, Gard. Chron., 1882, xviii., 469.

134 ERIOCHILUS, R. Brown.

Five or six species are known, all from Australia.

135. **Eriopsis**, Lindley.

Three or four species, from North Brazil, Guiana, and Colombia. *E. biloba* is an interesting and showy species. See Bot. Mag., t. 4437.

136. **Erycina**, Lindley.

One species known, from Mexico, resembling Ionopsis in habit. See Gard. Chron., 1879, xi., 433.

EUCNEMIS (see Govenia), Gard. Chron., 1879, xi., 433.

137. EUCOSIA, Blume.

One species, from Java.

138. **Eulophia**, R. Brown.

Fifty species, wild for the most part, in Tropical and Southern Africa, Tropical Asia, and one from Brazil. Few have been introduced. See Orchid Album, t. 89; Gard. Chron., 1879, xi., 433; Bot. Mag., t. 2467, 5564, 5579, 5875, 6246.

139. FARICARIA, Lindley.

One species, from South Africa.

FREGEA (see Sobralia), Gard. Chron., 1879, xi., 433.

140. **Galeandra**, Lindley.

Six species, wild in Tropical America, Brazil and Mexico. See Gard. Chron., 1879, xi., 433; Bot. Mag., t. 4610, 4701; Bot. Reg., 1840, t. 49; Maund's Botanist, t. 231.

*G. nivalis, Gard. Chron. 1882, xvii., 537.

141. GALEOLA, Loureiro.
Twelve species, from India, Japan, Malayan Archipelago, Australia, and New Caledonia.
GALEOTTIA. (See Zygopetalum.)
*G. fimbriata, Gard. Chron., 1856, 660.

142. GASTRODIA, R. Brown.
Seven species, from India, Western Asia, Malayan Archipelago, Australia, and New Zealand.

143. **Geodorum**, Jackson.
Nine or ten species, wild in India, Malayan Archipelago, and Australia. See Bot. Mag., t. 2195.

144. **Glomera**, Blume.
Two species, from the Malayan Archipelago and Pacific Isles. See Gard. Chron., 1882, xviii., 812.

145. GLOSSODIA, R. Brown.
Four species, wild in Australia.

146. GLOSSULA, Lindley.
One species, from China and Cochin China; near Harbenaria, or Bonatea.

147. **Gomeza**, R. Brown.
Six species, wild in Brazil, related to Odontoglossum or Rodriguezia. See Bot. Mag., t. 2746 (Pleurothallis), t. 3497, 3505 (as Rodriguezia).

148. GOMPHICHIS, Lindley.
Four or five species, wild on the Andes of South America.

149. **Gongora**, Ruiz and Pavon.
Twenty species, wild in Mexico and Braxil. The genus Acropera is now included. Some of the species are very interesting as grown in baskets, although not showy enough for modern collectors. See Gard. Chron., 1879, xi., 433.

150. **Goodyera**, R. Brown.
Twenty-five species, natives of Britain, Europe, Madeira, Asia, tropical and temperate; Madagascar, North America, and New Caledonia. Velvety-leaved, low-growing plants, resembling the Anæctochili of the Tropics. *G. discolor* and *G. Dawsoni* are common in collections. See Gard. Chron., 1879, xi., 433; Bot. Mag., t. 2540.

151. GOVENIA, Lindley.
Ten species are known, from Brazil, Mexico, and the West Indies. See Gard. Chron., 1879, xi., 433; Bot. Mag., t. 3660, 4151.

152. GRAMMANGIS, Reichenbach f.
Two species, one from Madagascar (see Bot. Mag., 5179, Grammatophyllum), and one from Java(?). See Bot. Mag., t. 5676 (as *Cymbidium Huttoni*).

153. **Grammatophyllum**, Blume.
Three or four species, from Malayan Archipelago and Madagascar. They are large-growing epiphytes. See Orchid Album, t. 147.
*G. speciosum, Gard. Chron., 1878, x., 180.

154. **Grobya**, Lindley.
Two species, wild in Brazil.

155. GYMNOCHILUS, Blume.
Two species, wild in Madagascar. Near Goodyera.

156. **Habenaria**, Willdenow.
Four hundred species, from the temperate and subtropical regions, where they are widely distributed. Few are worth cultivating. See Gard. Chron., 1879, xi., 433.

157. HÆMARIA, Lindley.
Four species, wild in China, Cochin China, and the Malayan Archipelago. See Bot. Mag., t. 2055; Bot. Reg., t. 271.

158. **Hartwegia**, Lindley.
One species, wild in Mexico and Central America, and rarely met with in collections as *H. purpurea*. See Gard. Chron., xix., 764.

159. HEMIPILIA, Lindley.
Two species, wild in India. Near Habenaria or Bonatea.

160. HERMINIUM, Linnæus.
Six species, wild in Europe and Temperate Asia.

161. HERPYSMA, Lindley.
One species known, from the Himalayas.

162. **Herschelia**, Lindley.
Two species, from Southern Africa. Near Disa. *H. cœlestis* flowered at De Graaff's nursery in Leyden a few years ago.

163. HETÆRIA, Blume.
Thirteen species, from India, Malaysia, Australia, and Tropical Africa. Near Goodyera, but not showy.

164. **Hexadesmia**, A. Brongniart.
Four or five species, from Mexico, Central America, West Indies, and Brazil. See Gard. Chron., 1883, xix., 700.

165. HEXALECTRIS, Rafin.
One species, from Southern North America and Mexico, near Corallorhiza and Bletia.

166. **Hexesia**, Lindley.
Three or four species, wild in Mexico, Central America, and Brazil. See Gard. Chron., 1879, xi., 434; 1883, xix., 700.

167. HOFFMEISTERELLA, Reichenbach f.
One species, from the Andes of Ecuador.

168. HOLOTHRIX, L. C. Richard.
Eighteen or twenty species, from Abyssinia and South Africa.

169. **Hormidium**, Lindley.
Seven species, from Tropical America, Brazil, Cuba and Mexico. See Gard. Chron., 1883, xix., 700; Bot. Mag., t. 3233, 6314.

170. **Houlletia**, A. Brongniart.
Five species, from Brazil and Colombia. See Gard. Chron., 1879, xi., 434; Bot. Mag., t. 4075, 6305.
*H. chrysantha, Gard. Chron., 1882, xviii., 437.
HUNTLEYA. (See Zygopetalum.)

171. HUTTONÆA, Harvey.
Two species, from South Africa.

172. HYLOPHILA, Lindley.
One species, from Malacca and Malayan Archipelago.

173. **Ionopsis**, Humboldt, Bonpland, and Künth.
Ten species are known, from Tropical America, Brazil, Mexico, and the West Indies. *I. paniculata* and others are showy, but difficult of prolonged cultivation See Gard. Chron., 1879, xi., p. 434; Bot. Mag., t. 5541.

174. **Isochilus**, R. Brown.
Four or five species, from South America, Brazil, Mexico, West Indies. See Bot. Reg., t. 745 ; Gard. Chron., 1879, xi., 434 ; 1883, xix., 764.

175. **Josepha**, Wight.
Two species, from the Indian Peninsula and Ceylon. See Gard. Chron., 1882, xviii., 812.

176. **Lacæna**, Lindley.
Two species, known in Central America. See Gard. Chron., 1879, xi., 434.

177. **Lælia**, Lindley.
Twenty species or more, from Mexico to Brazil; differs from Cattleya in having eight pollen masses in each flower instead of four. All are showy, and much prized. See Orchid Album, t. 2, 9, 10, 23, 30 44, 49, 60, 75, 97, 117, 123, 132, 135, 138, 146, 181; Gard. Chron., 1879, xi., 559; Bot. Mag., t. 3804, 3810, 3817, 3957, 4000, 4099, 4302, 4205, 5144, 5449, 5498, 5553, 5667, 6038. The following species are figured in Gard. Chron. :—

*L. autumnalis var., 1872, 1009.
*L. Jongheana, 1872, 425.
*L. majalis, 1883, xix., 628.
*L. Mylamiana, 1876, ii., 740.
*L. purpurata, 1880, xiv., 45.
*L. Veitchiana, 1883, xx., 145 (Supplement).

178. **Læliopsis**, Lindley.
Species three or four, from the West Indies and Cuba and St. Domingo. *Læliopsis Domingiensis* resembles Broughtonia in habit, with pale rosy flowers.

179. **Lamium**, Lindley.
Species two only, from Brazil and Surinam. Near Epidendrum. See Gard. Chron., 1883, xix., 660.

180. **Latourea**, Blume.
One species, wild in New Guinea, with the habit of Dendrobium. See Gard. Chron., 1882, xviii., 52.

181. LEUCANORCHIS, Blume.
Two species, from Java and Japan, resembling Aphyllorchis.

182. LEIOCHILUS, Knowles and Westcott.
Four or five species, wild in Central America, Mexico, and the West Indies. See Bot. Mag., t. 3845.

183. **Lepanthes**, Swarz.
Forty species, from Tropical America on the Andes, Mexico and West Indies. See Bot. Mag., t. 4112, 5259; Gard. Chron., 1879, xi., 559; 1881, xvi., 136.

184. LEPIDOGYNE, Blume.
One species, from Java
LEPTOTES. (See Tetramicra).

185. LEUCORCHIS, Blume.
Two or three species, from India, Malayan Archipelago, and the Pacific Islands. Widely distributed.
LIMATODES. (See Calanthe.)

186. **Limodorum**, L. C. Richard.
One species, wild in the Mediterranean, Europe, and Caucasus.

187. **Liparis**, L. C. Richard.
A hundred species, widely dispersed throughout the subtropical regions. *L. longipes* is now and then found in cultivation. See Gard. Chron., 1879, xi., 559; 1881, xvi., 592; Bot. Mag., t. 2004 (Malaxis), 2709, 3770, 5529.
*L. Lœselii, Gard. Chron., 1884, xxi., 144.

188. **Lissochilus**, R. Brown.
Thirty species, from Tropical and Southern Africa. See Bot. Mag., t. 2931 (Eulophia), 5486, 5851.

189. **Listera**, R. Brown.
Ten species, in Europe and Temperate Asia and mountains of North America. See Reich., Ic. Fl. Germ., t. 478, f. 3—5, t. 479, 480; Hook. Fl. Bor. Amer., t. 205.

190. **Lockhartia**, Hooker.
Ten species, from Tropical America, Brazil, West Indies, and Mexico. See Gard. Chron., 1879, xi., 559; Bot. Mag., t. 2715, 5592 (Fernandezia); Bot. Reg., t. 1806 (Fernandezia).

191. **Luisia**, Gaudichaud.

Ten species, from India, Eastern Asia, Malaysia and Japan. See Bot. Mag., t. 3648 (Cymbidium), 5558.

*L. Psyche, Gard. Chron., 1865, 842.

192. **Lycaste**, Lindley.

Twenty-five species, from Tropical America, Peru, Mexico, and West Indies. Pamphinia and Colax are now included here. Mostly showy. *L. Skinneri* and its varieties are very popular. See Orchid Album, t. 100; Gard. Chron., 1879, xi., 559; Bot. Mag., t. 3146, 3395, 4081, 4193, 4445, 5616, 5706, 6251, 6303.

*L. flavescens, Gard. Chron., 1882, xvii., 523.

193. **Lycomormium**, Reichenbach, f.

Two or three species, from Colombia and Central America. Habit of Peristeria. Flowers resembling Cyrtopodium. See Bot. Reg., t. 1953; Knowles and Westcott, Floral Cabinet, t. 70.

194. LYPERANTHUS, R. Brown.

Five or six species, from New Caledonia, New Zealand.

195. MACODES, Blume.

One species, from Java. See Blume, Orch. Archip. Ind., 119, t. 31, 36; Rchb. f., Xen. Orch., t. 96, f. 1.

196. **Macradenia**, R. Brown.

One or two species, from the West Indies. See Gard. Chron., 1879, xi., 559.

197 **Malaxsis**, Swarz.

One little species (*M. paludosa*), is epiphytal on living sphagnum in Britain, Ireland and North Europe. See Gard. Chron. 1881, xvi., 463.

*M. paludosa, 1884, xxi., 144.

198. MANNIELLA, Reichenbach f.

One species, native of West Tropical Africa. Related to Platylepis. Flowers small, not showy.

199. **Masdevallia**, Ruiz and Pavon.

Species a hundred or more, wild in South America, Peru, Mexico, Brazil, Guiana, and West Indies, generally at considerable altitudes on mountains. Many are showy and they are favourites in collections along with Odontoglossa from similar climates. *M. Veitchii*, *M. Harryana*, *M. Davisii*, *M. tovarenses*, *M. chimæra*, and others, are very beautiful. For full list of species see Gard. Chron., 1881, xvi., 236, 305, 336, 409; 1879, xi., 559; Orchid Album, t. 5, 24, 62, 76, 105, 110; Bot. Mag., t. 4921, 5476, 5505, 5239, 5962, 5990, 6152, 6159, 6171, 6190, 6208, 6258, 6262, 6273, 6368, 6372. The following species are figured in Gard. Chron.:—

*M. bella, 1880, xiii., 756; 1881, xvi., 237.
*M. Carderi, 1883, xx., 181.
*M. chimæra, 1875, iii., 41; 1881, xvi., 113.
*M. coccinea, 1868, 70; 1881, xvi., 236; 1884, xxi., 736.
*Masdevallia, group of, 1881, xxi., 741.
*M. ignea, 1872, 545; 1881, xvi., 305.
*M. Lindeni, 1874, i., 385; plant, 1881, xvi., 336.
*M. macrura, 1877, vii., 13; 1881, xvi., 337.
*M. nycterina, 1881, xvi., 337; 1874, 639.
*M. polysticta, 1875, iii., 657.
*M. racemosa var. Crossi, 1884, xxi., 737.
*M. rosea, 1880, xiii., 680, 681; 1881, xvi., 336; 1882, xvii., 644.
*M. Schlimii, 1883, xix., 532.
*M. tovarense, 1871, 1421; 1881, xvi. 409.
*M. triaristella, 1876, vi., 559.
*M. Veitchiana, 1871, 1421; 1881, xvi., 409.
*M. Wallisii var. stupenda, 1885, xxiii., 473.

200. **Maxillaria**, Ruiz and Pavon.

Above a hundred species are known, from Tropical America, Brazil, West Indies, and Mexico. *M. grandiflora* and *M. venusta* resemble Lycaste in having large flowers, solitary on basal scapes, but there are many inconspicuous species in the group. See Orchid Album, 106; Gard. Chron., 1879, xi., 559, 686; Bot. Mag., t. 2729, 3154, 3613, 3945, 3966, 4374, 4434, 6477; Bot. Reg., t. 3614.

201. **Megaclinium**, Lindley.

Nine species, wild in Tropical Africa, where they seem to represent the Eastern Bulbophylla. See Gard. Chron.

1882, xviii., 364; Bot. Mag., t. 4028, 5836; Bot. Reg., t. 1959.

MESOSPINIDIUM. (See Odontoglossum.)

202. **Meiracyllum**, Reichenbach, f.

Three species, from Mexico and Central America, with habit of Pleurothallids, and pollen resembling Eria. See Gard. Chron., 1879, xi., 686; 1881, xvi., 428.

203. MICROSACCUS, Blume.

Three or four species, from Malayan Archipelago and Malacca, somewhat resembling Saccolabium, with affinity with some Dendrobes.

204. **Microstylis**, Nuttall.

Forty species are wild in Europe, Asia, and America. North and South. See Gard. Chron., 1879, xi., 686; 1881, xvi., 463; Bot. Mag., t. 4103, 5403, 6325.

*M. histionantha, 1881, xvi., 463.

205. MICROTIS, R. Brown.

Six species, wild in Australia and New Zealand (? Java.)

206. **Miltonia**, Lindley.

Ten species, from Peru and Brazil. Mostly showy when well grown. It is questionable whether the Miltonia-flowered Odontoglots should not be included here, or are they hybrids, Miltonia and Odontoglossum? See Orchid Album, t. 46, 72, 146; Bot. Mag., t. 3793, 4109, 4204, 4425, 5436, 5572, 5843.

*M. Warscewiczii, Gard. Chron., 1871, 1258.

207. MŒRENHOUTIA, Blume.

One species, wild in the Society Island. Not showy.

MONACANTHUS. (See Catasetum.)

208. MONADENIA, Lindley.

Twelve species, from South Africa, approaching Disa.

209. **Monomeria**, Lindley.

Two species, one from Nepal and one from Burmah, resembling Bulbophylli. See Gard. Chron., 1882, xviii., 427.

210. **Mormodes**, Lindley.

Fourteen species, from Colombia, Central America, and Mexico. Showy and interesting plants, requiring a hot, dry atmosphere like Catasetum. See Gard. Chron., 1879, xi., 686; Bot. Mag., t. 3879, 3900, 4214, 4455, 4577, 5802, 2840, 6496. The following are figured in Gard. Chron.:—

*M. Cartoni var., 1871, 447.
*M. luxatum eburneum, 1882, xviii., 145.
*M. Ocanæ, 1879, xii., 816, 817.

211. MORMOLYCE, Fenzl.
One species, wild in Mexico.
MYANTHUS. (See Catestum.)

212. MYRMECHIS, Blume.
Two species, from Java and Japan.

213. MYSTACIDIUM, Lindley.
Twenty species, from Tropical and Southern Africa, near Angræcum.
NANODES, Lindley. (See Epidendrum.)
*N. Medusæ, Gard. Chron., 1867, 432.

214. NEODRYAS, Reichenbach, f.
Three species, from Bolivia and Peru, approaching Oncidium (*O. Brunleesianum*).

215. **Neottia**, Linnæus.
Three species, from Europe, Northern Asia, in mountainous districts. Not showy.

216. **Nephelaphyllum**, Blume.
Four species, from India, South China, and Malayan Archipelago. See Gard. Chron., 1882, xviii., 780; Bot. Mag., t. 5332, 5390.

217. NEUWIEDIA, Blume.
Three species, from Malacca and the Malayan Archipelago.

218. **Notylia**, Lindley.
Eighteen species, from Tropical America (Pleurothallis). See Gard. Chron., 1879, xi., 719; Bot. Mag., t. 5609, 6311; Bot. Reg., t. 759 (Pleurothallis).

219. **Oberonia**, Lindley.
Fifty species, from Tropical Asia, Madagascar, Pacific Islands, and Australia. Curious epiphytes, with distichous leaves and minute greenish flowers arranged in rat-tail-like spikes. See Gard. Chron., 1881, xvi. 527; Bot. Mag., t. 4517, 5056.

220. **Octodesmia**, Bentham.
Three species, from Jamaica, St. Domingo. See Gard. Chron., 1883, xix., 700; Bot. Mag., t. 2823.

221. **Octomeria**, R. Brown.
Ten species, described from Tropical America and the West Indies. Near Pleurothallis. See Gard. Chron., 1879, xi., 719; 1881, xvi., 428; Bot. Mag., t. 2764.

222. **Odontochilus**, Blume.
Ten species, from India, Malayan Archipelago, and the Pacific Islands. Ornamental-leaved plants, related to the Anæctochiles. See Gard. Chron., 1883, xix., 608.

223. **Odontoglossum**, Humboldt, Bonpland, and Künth.
Eighty species, of numerous varieties, wild on the Andes of Tropical America, Bolivia, and Mexico. Nearly all the species are amenable to cool-house growth, the exceptions being *O. grande*, *O. Insleayi*, *O. citrosmum*, and the species of the Miltonia flowered, or *O. vexillarium* group. The genus Mesospinidium is now included here. See Orchid Album, t. 27, 35, 40, 43, 47, 52, 58, 64, 66, 68, 71, 79, 82, 85, 90, 101, 111, 118, 127, 131, 151, 163, 167, 171, 175; Gard. Chron., 1879, xi., 719; Bot. Mag., t. 3812 (Zygopetalum), 3955, 4372, 4878, 4919, 4923, 5691, 5697, 5736, 5778, 5993, 6029, 6144, 6229, 6237, 6265, 6317, 6455, 6502. The following species are figured in Gard. Chron.:—

*O. Andersonianum, 1884, xxii., 44.
*O. Andersonianum var. lobatum, 1884, xxii., 45
*O. cirrosum, 1878, ix., 181; 1876, v., 54, 503.
*O. Coradinei, 1872, 1068.
*O. Dawsonianum, 1865, 1226.
*O. elegans, 1883, xix., 721.
*O. gloriosum, 1865, 578.
*O. grande, fruit of, 1885, xxiii., 505.
*O. Halli, 1865, 962; 1873, 77.
*O. hebraicum, 1881, xvi., 175.
*O. Krameri, 1868, 98.
*O. luteo-purpureum, 1884, xxi., 585.
*O. lyroglossum, 1882, xvii., 632. (Supplement, May 13, 1882.)

*O. membranaceum, 1881, xv., 753.
*O. mulus var., 1883, xix., 469.
*O. nebulosum, 1867, 572,
*O. nebulosum candidulum, 1867, 710.
*O. nevadense, 1881, xvi., 461.
*O. Oerstedii, 1877, vii., 811.
*O. odoratum, 1881, xv., 337.
*O. Pescatorei, 1884, xxii., 332.
*O. Phalænopsis, 1872, 832.
*O. polyxanthum, 1881, xvi., 461 ; 1883, xix., 761.
*O. radiatum, 1865, 746.
*O. Roezlii, 1873, 1303.
*O. Rossi majus var. rubescens, 1884, xxi., 345.
*O. Ruckerianum, 1873, 105.
*O. Schliperianum, 1865, 1082.
*O. triumphans, 1867, 516.
*O. vexillarium, 1872, 667 ; 1873, 644.
*O. Warnerianum, 1865, 579.
*O. Wilckeanum, 1884, xx., 640.

224. OEONIA, Lindley.

Four or five species, wild in Madagascar. They are related to Angræcum.

225. **Oncidium**, Swarz.

Over 250 species are known, from Tropical America. Brazil and Bolivia, West Indies, and Mexico. Many showy species are in cultivation. They vary much in habit, the sections being "small lipped" (*microchilia*), "Iris-leaved" (*equitantia*), "round-leaved" (*teretifolia*), and "flat-leaved" (*planifolia*). *O. papilio* is the "Butterfly Orchid," and one of the first of Orchids to attract public attention in England. See Orchid Album, t. 1, 12, 32, 104, 129, 137, 183 ; Bot. Mag., t. 5632, 2773, 3393, 4130, 3568, 777, 1491, 2203, 2990, 3109, 3486, 3499, 3581, 3705, 3712, 3752, 3806, 3807, 3836, 5193, 6138, 6254 6278, 6322. See also Gard. Chron., 1879, xii., 43. The following are figured in Gard. Chron.:—

*O. bifrons, 1857, 84.
*O. candidum, 1883, xx., 233.
*O. Forbesii, 1879, xi., 525.
*O. Forbesii var. Borwickianum, 1879, xi., 525.

*O. Gardnerianum, 1881, xvi., 86.
*O. Lanceanum, 1884, xxi., 609.
*O. luridum var. purpuratum, 1848, 159.
*O. macranthum, 1869, 739.
*O. microchilum, 1856, 68.
*O. monachicum, 1883, xix., 369.
*O. Rogersii, 1870, 277.
*O. splendidum, 1871, 42.
*O. varicosum, 1870, 277.
*O. zebrinum, 1872, 1355.

226. **Ophrys**, Linnæus.

Thirty species or more, wild in Europe, Temperate Asia, and Northern Africa. The likeness to insects, as shown by several species of Ophrys, has long been observed. The Spider, Fly and Bee Ophrys belong to this group, and some European species and varieties are very beautiful. See Rchb. Ic. Fl. Germ., t. 443, 465; Barlæ. Ic. Orch. Alp. Marit., t. 51, 62; Moggr. Fl. Ment., t. 19, 43, 46, 72. See Gard. Chron., for figures of the following:—

*O. tenthredinifera, 1872, 605.
*O. scolopax, 1869, 442; 1872, 1009.

227. **Orchis**, Linnæus.

Eighty species, widely distributed throughout the temperate regions of the Northern Hemisphere. The most showy species are from North Africa and the islands of Madeira, and those of the Canary group. The "long purples" of Shakespeare are supposed to refer to our *O. mascula*. These species of Orchids are more easily cultivated than are many other terrestrial species.

*Orchis, Snipe (*Ophrys scolopax*), 1869, 442; 1872, 1009.

228. OREORCHIS, Lindley.

Four species, from the mountains of Asia and India, Siberia and Japan.

229. **Ornithidium**, Salisbaud.

Twenty species, from Tropical America, Brazil, West Indies, and Mexico. *O. coccinea* is a pretty little red-flowered species, in cultivation. See Gard. Chron., 1879, xi., 75; Bot. Mag., t. 1437 (Cymbidium); Bot. Reg., t. 1804; Saunders' Ref. Bot., t. 105 (*Maxillaria densa*).

230. **Ornithocephalus**, Hooker.
Twenty species, from Tropical America, Brazil, and Mexico. Small-growing epiphytes of no great beauty. Gard. Chron., 1879, xii., 75.

231. Ornithochilus, Wallich.
Two species, from the Himalayas and Burmah.

232. Orthoceras, R. Brown.
One species, from Australia and New Zealand. Fitzgerald, Australian Orchids, with plate.

233, **Osyricera**, Blume.
One species, from Java, approaching Bulbophyllum. See Gard. Chron., 1882, xviii., 427.

234. Otochilus, Lindley.
Three or four species, from the Himalayas and Burmah. Near Cœlogyne. See Bot. Mag., t. 3921.

235. Pachites (?), Lindley.
One species, from South Africa.

236. **Pacyphyllum**, Humboldt, Bonpland and Künth.
Six or seven species, from the Andes of Tropical America. Near Lockhartia, or Fernandezia. See Hooker, Icon. Plant., t. 117; Gard. Chron., 1879, xii., 75.

237. **Pachystoma**, Blume.
Ten species, native of India, Malayan Archipelago, and Tropical Africa. *P. Thompsonianum* is a very beautiful species, now and then seen in cultivation. Ipsea is now included here. See Gard. Chron., 1882, xviii., 500; Bot. Mag., t. 5701, 6471.

*P. speciosum Thompsoni, Gard. Chron., 1879, xii., 625; 1882, xviii., 501.

Palumbina (see Oncidium).

*P. candida, Gard Chron., 1865, 793.

238. **Panisea**, Lindley.
One or two species, from the Himalayas. Related to Cœlogynes and Bulbophylls. Gard. Chron., 1882, xviii., 427.

Paphinia (see Lycaste), Orchid Album, t. 34, 145.

PAPPERITZIA, Gard. Chron., 1879, xii., 75.
PAXTONIA (see Spathoglottis).
*Paxtonia rosea, 1882, xviii., 532.

239. PELEXIA, Lindley.

Seven or eight species, from Tropical America, Brazil, West Indies, and Central America. Near Spiranthes and Cephalanthera. Not showy.

240. **Peristeria**, Hooker.

Two or three species, from the Andes of Colombia, and from Panama. *P. elata* is the "El Spirito Sancta," or "Dove Orchid," often met with in gardens, where it produces long erect spikes of fleshy-white, waxlike flowers. Gard. Chron., 1879, xii., 75.

PESCATOREA (see Zygopetalum), Orchid Album, t. 17, 57.
*P. Dayana var. candidula, Gard. Chron., 1875, iii., 343.
*P. Lehmanni, Gard. Chron., 1882, xvii., 45.

241. **Phaius**, Loureiro.

Fifteen species, wild in Tropical Asia, Japan, Malaysia, Pacific Islands, Australia, Madagascar, and in Tropical Africa. *Phaius grandifolius*, from Hong Kong, is naturalised in Jamaica, and is one of the oldest of cultivated Orchids. Thunia is now included under Phaius. *P. Wallichii* is only a form of *P. grandiflora* See Orchid Album, t. 91; Gard. Chron., 1882, xviii., 565; Bot. Mag., t. 1924, 2713 (Bletia), t. 3960, 4078, 6032, 4442, 3991, 5694. The following species are figured in Gard. Chron.:—

*P. Callosus, 1848, 287.
*P. grandifolius, 1872, 733; 1882, xviii., 565.
*P. irroratus, 1867, 264; 1882, xviii., 565.
*P. tuberculosus, 1881, xv., 341; 1882, xviii., 595; 1884, xxi., 520.

242. **Phalænopsis**, Blume.

Twenty to thirty species, from India, the Philippines, and Malayan Archipelago. These are amongst the most graceful and beautiful of all Orchids. *P. grandiflora*, *P. amabilis*, *P. Schilleriana*, and their varieties, are well-known. See Orchid Album, t. 11, 39, 80, 158, 182; Bot. Mag., t. 4297, 5184, 5351, 5630, 6622, 5212, 5523, 5527, 5815, 5570. The following are figured in Gard. Chron. :—

*P. amabilis, 1848, 269.
*P. amethystina, 1870, 1731.
*Phalænopsis at home, 1879, xi., 597.
*P. grandiflora, 1848, 39.
*P. Portei, 1876, v., 369, 371.
*P. rosea, 1848, 671.
*P. speciosa var. Christiana, 1882, xviii., 745.
*P. Schilleriana, 1875, iv., 169; 1881, xvi., 301.
*P. Stuartiana, 1881, xvi., 752.
*P. Sumatrana, 1865, 507.
*P. violacea, 1881, xvi., 145.

243. **Pholidota**, Lindley.

About twenty species, from India, Malaysia and South China. *P. imbricata* and *P. articulata* are met with in collections, but none are showy. See Gard. Chron., 1883, xix., 608.

244. **Phreatia**, Lindley.

Ten species, wild in India, Malaysia, Pacific Isles, and Australia. Oberonia is included. See Gard. Chron., 1882, viii., 500.

245. PHYMATIDIUM, Lindley.

Two species from Brazil. Near Ornithocephalus.

246. **Physosiphon**, Lindley.

Four species, from Tropical America, Brazil, and Mexico. Near Stelis, and not showy. *P. Loddigesii* is sometimes grown in collections. See Gard. Chron., 1879, xii., 75; 1881, xvi., 136; Bot. Mag., t. 4869; Loddiges, Botanical Cabinet, t. 1601 (Stelis).

247. **Physurus**, L. C. Richard.

Twenty species, wild in Asia and Tropical America. Low growing, leafy Orchids, resembling Goodyera or Anæctochilus. See Gard. Chron., 1879, xii., 75; Bot. Mag., t. 5305.

PILUMNA (see Trichopilia), Orchid Album, t. 128.

248. **Pinelia**, Lindley.

One species, wild in Brazil, resembling Restrepia. See Gard. Chron., 1883, xix., 764.

PLATANTHERA (see Habernaria), Gard. Chron., 1879, xii., 75.

249. PLATYCLINIS, Bentham.

Eight species, from India and Malaysia, resembling Liparis, See Bot. Mag., t. 4853.

250. PLATYCORYNE, Reichenbach f.

One species, wild in Madagascar, and approaching Disa in habit.

251. PLATYLEPIS, A. Rich.

Five species, wild in Tropical and Southern Africa and Madagascar. Near Goodyera.

PLEIONE = Cœlogyne. See Orchid Album, t. 102.

*Pleiones, Gard. Chron., 1874, i., 15.

252. **Pleuranthium**, Lindley.

Five or six species, wild in Tropical America. Near Ponera. Not showy. See Gard. Chron., 1883, xix., 764.

253. **Pleurothallis**, R. Brown.

About 350 species are wild in Tropical America, Brazil, Bolivia, and elsewhere on mountains. Many are weedy. For full list of cultivated species see Gard. Chron., 1879, xii., 75 ; 1881, xv., 784 ; xvi., 10, 42 ; Bot. Mag., t. 3261, 3030, 3682, 3897, 4142.

*P. scapha, Gard. Chron., 1881, xv., 784.

254. PLOCOGLOTTIS, Blume.

Eight species, from Malaysia.

255. PODOCHILUS, Blume.

Twelve species, wild in India and Malayan Archipelago.

256. **Pogonia**, Jussieu.

Thirty species, wild in all parts of the world, America and Asia, both Tropical and Temperate; also in Temperate and Tropical Africa. See Bot. Mag., t. 6125.

257. POGONIOPSIS, Reichenbach f.

One species, wild in Brazil, and related to Pogonia.

258. **Polycycnis**, Reichenbach f.

Three or four species, native of Tropical America. Pretty little plants, resembling Gongora in habit. See

Gard. Chron., 1879, xii., 75; Bot. Mag., t. 4479 (Cycnoches); Bot. Reg., 1841, t. 69 (Houlletia).

259. **Polystachya**, Hooker.
Forty species, wild in Tropical and Southern Africa, rarely found in Asia and America. But few species are worth culture. See Gard. Chron., 1879, xii., 75; Bot. Mag., t. 3707, 4161, 5586.

260. **Ponera**, Lindley.
Four or five species, wild in Mexico and Central America. Near Epidendrum. See Gard. Chron., 1883, xix., 764; xii., 107.

261. **Ponthieva**, R. Brown.
Ten or twelve species, wild in Tropical and Sub-tropical America. Terrestrial herbs. Near Neottia. See Bot. Mag., t. 842 (Neottia), and 6337; Gard. Chron., 1879, xii., 107.

262. PRASOPHYLLUM, R. Brown.
Twenty-six species, wild in Australia and New Zealand, and in New Caledonia. Terrestrial herbs. Not showy.

263. **Prescottia**, Lindley.
Twenty species, from Tropical America, Brazil, West Indies, and Mexico. Not showy. See Gard. Chron., 1879, xii., 107; Bot. Reg., t. 1915; Lodd., Bot. Cab., t. 990.

PROMENÆA, Orchid Album, t. 7. (See Zygopetalum.)

264. **Pseudocentrum**, Lindley.
Four or five species, wild on the Andes of Southern and Central America, and in Jamaica. Not showy. See Gard. Chron., 1879, xii., 107.

PSITTACOGLOSSUM (see Maxillaria), Gard. Chron., 1879, xii., 107.

265. PTERICHIS, Lindley.
Six species, wild in Tropical and Southern America. Terrestrial herbs. Not showy.

266. PTEROGOSSASPIS, Reichenbach f.
One species, found in Abyssinia.

267. **Pterostylis**, R. Brown.
Thirty-six species, from Australia, New Zealand, and New Caledonia. See Fitzgerald, Austral. Orch., with twelve plates; Bot. Mag., t. 3085, 3086, 3172, 3400, 3401, 6351.
*P. Baptistii, Gard. Chron., 1878, ix., 273.

268. PTERYGODIUM, Swarz.
Ten species, from South Africa.

269. QUEKKETTIA, Lindley.
One species, wild in Brazil. Not showy.

270. **Renanthera**, Loureiro.
Five species, from India and the Malayan Archipelago and China. *R. coccinea* is a showy species. See Bot. Mag., t. 2997, 2998; Bot. Reg., t. 1131; 1843, t. 41.
*R. Lowi, Gard. Chron., 1883, xx., 657.
*R. coccinea, Gard. Chron., 1845, 491.

271. **Restrepia**, Humboldt, Bonpland, and Künth.
About twenty species, from Tropical America, Brazil, and Mexico. In habit resembling Pleurothallis. See Gard. Chron., 1879, xii., 107; 1881, xvi., 172; Bot. Mag., t. 5257, 5966, 6288.
*R. elegans, Gard. Chron., 1881, xvi., 172.

272. RHYNCHOSTYLIS, Blume.
Two or three species, wild in India and Malaysia. Resembling Saccolabium. See Bot. Mag., t. 4108.

273. **Rodriguezia**, Ruiz and Pavon.
Twenty species, including Burlingtonia, from Tropical America, Brazil, and Central America. See Gard. Chron., 1879, xii., 107; Bot. Mag., t. 3324, 4834, 5419; Bot. Reg., t. 930; Lodd., Bot. Cab., t. [illegible].

274. **Saccolabium**, Blume.
About twenty species, wild in India and the Malayan Archipelago. *S. giganteum*, *S. guttatum*, *S. præmorsum*, and others, are well known favourites, specimens bearing twenty to thirty spikes having been exhibited. Well grown they are very effective. See Orchid Album, t. 56. 107, 156, 169; Bot. Mag., t. 4772, 5326, 5433, 5595, 5635, 5681, 5767, 6222.

*S. Blumei, Gard. Chron., 1885, xxiii., 523.
*S. guttatum, Gard. Chron., 1845, 364; 1874, i., 219.
SARCOPODIUM. (See Bolbophyllum and Dendrobium.)
*S. Dearei, Gard. Chron., 1883, xx., 108.

275. **Sarcanthus**, Lindley.
Fifteen or twenty species, from India and South China, and the Malayan Islands. Scarcely any are showy. See Bot. Mag., t. 3571, 4639, 5217, 5630.

276. **Sarcochilus**, R. Brown.
Thirty species, from India, Malaysia, Pacific Islands, and Australia. Not much cultivated, although *S. calceolus* is showy.

277. **Satyrium**, Swarz.
Fifty species, from India, Madagascar, and Tropical and Southern Africa. Terrestrial herbs, many of which are beautiful, but not easy of cultivation. See Bot. Mag., t. 1512, 2172, 6625; Bot. Reg., t. 416, 703; 1840, t. 18; Lodd., Bot. Cab., t. 104.
*S. nepalense, Gard. Chron., 1885, xxiii., 208.

278. SAUNDERSIA, Reichenbach f.
One species, wild in Brazil.

279. **Scaphoglottis**, Pœppig and Endlicher.
Eight or ten species, from Tropical America. Not very showy. Gard. Chron., 1879, xii., 107; 1883, xix., 700; Bot. Mag., t. 4071; Bot. Reg., t. 1901.

280. SCELOCHILUS, Klotzsch.
Three or four species, wild on the Andes of Tropical America, and resembling Comparettia.

281. SCHIZOCHILUS, Sond.
Four or five species, wild in South Africa.

282. SCHIZODIUM, Lindley.
Ten species, from South Africa. Related to Disa, but not showy.

283. **Schlimmia**, Planch.
Three species, from Colombia, resembling Maxillaria in habit.
*S. trifida, Gard. Chron., 1877, vii., 141.

284. SCHŒNORCHIS, Blume.
One species, wild in Java (? Australia), resembling Saccolabium.

285. **Schomburgkia**, Lindley.
Twelve species, from Tropical and Central America. *S. tibicinis* has hollow pseudo-bulbs, and is the "Cow's-horn Orchid" of Honduras, and difficult to collect, owing to the ants which infest its sheltering stems. See Gard. Chron., 1879, xii., 107; Bot. Mag., 3729, 4476, 5172.

286. **Scuticaria**, Lindley.
Two or three species, from Brazil and Guiana. Epiphytes with curious thong-like or terete drooping leaves. *S. Steelii* and *S. Hadweni* have long been grown in gardens. See Orchid Album, t. 55; Bot. Mag., t. 4629 (Bifrenaria), 3572, 3573; Bot. Reg., t. 1986 (Maxillaria).

287. **Selenipedium**, Reichenbach f.
Ten species, from mountains of South and Tropical America. They are mostly grown as Cypripediums. *S. caudatum* is one of the most remarkable of Orchids, its petals growing 20 to 30 inches in length, a large proportion of which growth elongates after lower bud expansion. In *Uropedium Lindeni* the lip is petaloid instead of saccate, and three stamens are present. See Gard. Chron., 1879, xii., 107; Bot. Mag., t. 5466, 5614, 5970, 6217 (Cypripedia).

288. **Seraphyta**, Fischer and Meyer.
One species, from the West Indies, resembling Amblostoma. See Gard. Chron., 1883, xix., 700; Bot. Mag., t. 3565 (as *Epidendrum diffusum*).

289. **Serapias**, Linnæus.
Four or five species, wild in the Mediterranean region and extending to the Azores. They are so closely linked together by natural hybrid intermediates as to be scarcely distinguishable from a purely botanical point of view. See Bot. Mag., t. 5868, 6255; Bot. Reg., t. 1189; Moggr., Flor. Ment., t. 16, 94, 95.

***S. cordigera, Gard. Chron., 1883, xx., 341.**

90 SERTIFERA, Lindley.

One species only known, wild in Ecuador (*S. purpurea*, Lindley.)

291. SIGMATOSTALIX, Reichenbach f.

Seven species, wild in Tropical America.

292. **Sobralia**, Ruiz and Pavon.

Thirty species are wild on the Andes of Tropical America, Peru, Mexico, and Guiana. They are reedy herbs, bearing large Cattleya-like flowers, and represented in the West—the Arundinas of the Eastern Tropics. *S. macrantha* and its varieties are often met with in collections. See Lindl., Sert. Orch., t. 29; Bateman, Orch. Mex., t. 26, 37; Bot. Mag., t. 4446, 4570, 4682, 4882; Bot. Reg., 1841, t. 17.

*S. macrantha albida, Gard. Chron., 1871, 906.

203. SOLENIDIUM, Lindley.

Only one species, wild on the Colombian Andes, and allied to Oncidia.

294. **Sophronitis**, Lindley.

Four or five species, mostly from the Organ Mountains in Brazil. They are showy little epiphytes, with scarlet, butterfly-like flowers. *S. coccinea* and *S. grandiflora* are very popular in gardens. See Lindl., Sert. Orch., t. 5, f. 2; Bot. Mag., t., 3677, 3709; Flor de Serres, t. 1716.

*S. grandiflora, Gard. Chron., 1884, xxii., 561.

295. **Spathoglottis**, Blume.

Ten or more species, wild in India, South China, Malaysia, Pacific Islands, and Australia. Terrestrial herbs, often bearing showy flowers on erect spikes. "Paxtonia" is a pelorioid form of this genus. See Gard. Chron., 1882, xviii., 532.

*S. Lobbi, Gard. Chron., 1882, xviii., 532.

296. **Spiranthes**, L. C. Richard.

About a hundred species, of world-wide distribution. Few are showy, except one or two species of Stenorhynchus. *Spiranthes Romanzoviana* (= *S. gemmipara*), wild in the South of Ireland, is unknown elsewhere in Europe, but extends from the Atlantic to the Pacific in North America. See Gard. Chron., 1879, xiii., 107; Bot. Mag., t. 1568, 2026 (Neottia), 1562, 2730, 5277; Bot. Reg., t. 602, 794, 823, 1934.

*S. Romazoviana, Gard. Chron., 1881, xvi., 465.

297. **Stanhopea**, Forst.

About twenty species known, from Tropical America, Brazil, and Mexico. Strong-growing epiphytes, bearing peculiar sweet-scented flowers, all showy. They are well deserving of culture. The lip is peculiar, and variable in formation in different species. See Gard. Chron., 1879, xii., 107. The following species are figured in Gard. Chron.:—

*S. ecornuta, 1850, 295.
*S. florida, 1881, xvi., 561, 565.
*S. guttulata, 1848, 439.
*S. serrata, 1850, 295.
*S. tricornis, 1850, 295. See Bot. Mag., 3350, 4197, 4885, 5278, 5289, 5300.

298. **Stauropsis**, Reichenbach f.

Eight or ten species, from the Malayan Archipelago and (?) India. Generally included under Phalænopsis in gardens. *Trichoglottis pallens* is sometimes met with in cultivation, and is a good type species. See Lindl., Bot. Reg., 1846, t. 59; Bot. Mag., t. 5189.

299. **Stelis**, Swarz.

A hundred and fifty species are known in books, some few being in cultivation. They are wild in Tropical America, Brazil, Peru, Mexico, and the West Indies. See Gard. Chron., 1879, xii., 107; 1881, xvi., 136; Bot. Mag., t. 3975, 6521; Bot. Reg., t. 935; Lodd., Bot. Cab., t. 442, 1011,

*S. Bruchmülleri, Gard. Chron., 1881, xv., 136.

300. **Stenia**, Lindley.

Two species only known, one from Guiana, and the other from Colombia. *S. fimbriata* is often grown in gardens.

301. **Stenoglossum**, Humboldt, Bonpland, and Künth.

One species, from the Andes of Tropical America. Near Epidendrum or Diothonea. See Gard. Chron., 1883, xix., 700.

302. STENOGLOTTIS, Lindley.
One species, wild in Southern Africa.
STENORRHYNCHUS (see Spiranthes), Gard. Chron., 1879, xii., 138.

303. STENOPTERA, Presl.
Three species, from the mountains of Tropical America and the West Indies. Not showy.

304. STEREOSANDRA, Blume.
One species, wild in Java.

305. **Sunipia**, Lindley.
One species, from the Himalayas and Burmah. See Gard. Chron., 1881, xvi., 463.

306. SUTRINA, Lindley.
One species, from Peru.

307. TÆNIOPHYLLUM, Blume.
Six species, from India, Malaysia, Pacific Isles, and Australia.

308. **Tainia**, Blume.
Six or seven species, from India, South China, and the Malayan Archipelago. Allied to Eria. See Gard. Chron., 1882, xviii., 780.

309. TELIPOGON, Humboldt, Bonpland, and Künth.
Forty or more species, from the Andes of South America.

310. TETRAMICRA, Lindley.
Six species, from Tropical America, Brazil, and the West Indies. Leptotes is included here. See Bot. Mag., t. 3098 (Brassavola), 3734.

311. THECOSTELE, Reichenbach f.
Only one species, from Malacca and the Malayan Archipelago. Somewhat approaching the American Stanhopeas.

312. THELASIS, Blume.
Eight species, from India, China, and the Malayan Archipelago. Not showy.

313. **Thelymitra**, Forst.
Twenty species, from Australia, New Zealand, New Caledonia, and Malaysia.
THUNIA (see Phaius), Orchid Album, t. 67, 130.

314. TIPULARIA, Nuttall.
Two species, from North America and the Himalayan range. Near Oreorchis and Corallorhiza.

315. **Trias**, Lindley.
Three species, from India, wild in Moulmein, and approaching Bulbophylls. See Gard. Chron., 1882, xviii., 426.

316. **Trichocentrum**, Pœppig and Endlicher.
Eight species, from Tropical America, Brazil, and Central America. See Gard. Chron., 1879, xii., 139; Bot. Mag., t. 3969, 5688.
*T. albo-purpureum, Gard. Chron., 1866, 219.
*T. Pfavii, Gard. Chron., 1882, xvii., 117.

317. TRICHOCEROS, Humboldt, Bonpland, and Künth.
Six or eight species, from Peru and Colombia.

318. **Trichoglottis**, Blume.
Four or five species, from Malaysia; approaching Sarcochilus.

319. **Trichopilia**, Lindley.
Sixteen or more species, from Colombia, and Central America, and Mexico. Helcia and Pilumna are now placed here. Several species are grown in gardens. See Orchid Album, t. 14; Gard. Chron., 1879, xii., 139; Bot. Mag., t. 3739, 4654, 4857, 5035 (Pilumna), 5550, 5949.

320. **Trichosma**, Lindley.
One species, wild on the Khasia Hills, related to Eria, with the habit of Cœlogyne. See Orchid Album, t. 113; Gard. Chron., 1882, xviii., 812.

321. **Trigonidium**, Lindley.
Seven or eight species, from Tropical and Central America, Brazil, &c. See Gard. Chron., 1879, xii., 139.

322. **Trizeuxis**, Lindley.
One species, from the Colombian Andes. See Gard. Chron., 1879, xii., 139.

323. TROPIDIA, Lindley.
Five or more species, from India, Malaysia, and the Pacific Islands.

324. UNCIFERA, Lindley.

Two species, wild on the Khasia Hills, and resembling Saccolabium.

325. **Vanda**, R. Brown.

Twenty species and numerous varieties, from India, Malayan Archipelago, and Tropical Australia. *Vanda suavis* and *V. tricolor* are well-known favourites, varying greatly. *V. teres* and *V. Hookeri* are lovely representatives of the terete-leaved group. *V. Sanderiana* is one of the finest species. See Orchid Album, t. 15, 48, 59, 61, 73, 77, 124, 168, 172, 180; Bot. Mag., t. 2245, 3416, 4114, 4432, 5174, 5611, 5759, 5811, 5834, 6173, 6328. The following species are figured in Gard. Chron.:—

*V. Bensonæ, 1867, 180.
*V. Cathcartii, 1870, 1409.
*V. cœrulescens, 1873, 529.
*V. fuscoviridis, 1848, 351.
*V. lamellata Boxalli, 1881, xv., 87.
*V. Sanderiana, 1883, xx., 440, 441.
*V. suavis, 1872, 974.
*V. suavis, Wingate's var., 1884, xxii., 237.
*V. teres, 1883, xx., 273.
*V. tricolor Patersoni, 1884, xxii., 236.

326. **Vanilla**, Swarz.

Twenty or more species, of world-wide distribution in tropical countries, and remarkable as affording delicious flavouring principle from their fruits. See Gard. Chron., 1879, xii., 139.

*Vanilla, fertilisation of, Gard. Chron., 1867, 997.

327. VRYDAGZENIA, Blume.

Eight species, from the Malayan Archipelago, and the Pacific Islands. Near Hetæria or Anæctochilus.

328. **Warrea**, Lindley.

Two species, from Colombia and Peru. See Bot. Mag., t. 4235 (Maxillaria), Loddiges, Botanical Cabinet, t. 1884 (Maxillaria).

WARSCEWICZELLA (see Zygopetalum), Orchid Album t. 126.

329. WULLSCHLÆGELIA, Reichenbach f.
Two species, from the West Indies and North Brazil. Near Cranichis.

330. XYLOBIUM, Lindley.
Sixteen species, from Tropical America, resembling Maxillaria. See Bot. Mag., t. 2806, 2955, 2981.

331. YOANIA, Maximowicz.
One species, wild in Japan, resembling Epipogum.

332. ZEUXINE, Lindley.
Sixteen, from India, Malaysia, and Tropical Africa. Not showy.

333. **Zygopetalum**, Hooker.
Forty species, from the warm parts of South and Central America, Brazil, and the West Indies. Huntleya, Bollæa, Warscewiczella, and Promenæa are now included in this genus. See Orchid Album, t. 28, 50, 78, 87, 142; Gard. Chron., 1879, xii., 139; Bot. Mag., t. 2748, 2819, 3402, 3585, 3674, 3686, 4766, 4830 (Warrea), 5046, 5567, 5582, 5598 (Huntleya), 6003, 6331, 6458.
*Z. aromaticum, Gard. Chron., 1868, 75.

334. ZYGOSTATES, Lindley.
Three or four species, from Brazil; approaching the genus Ornithocephalus. Not showy.

REPORT

ON THE

PLANTS EXHIBITED.

II.

BOTANICAL.

From a botanical point of view, this exhibition, one of the largest and most varied yet made, was of very considerable interest, for though certain very popular cultural *genera*—*e.g.*, Odontoglossum, Cattleya, and Cypripedium—formed the bulk and most conspicuous portion of the show, yet there were a number of smaller and less striking plants shown which possessed an almost strictly botanical interest. These were chiefly shown by the amateurs, the dealers devoting themselves rather to the more showy *genera* and hybrids. Several of the *genera* well known in cultivation were hardly or not at all represented in the exhibition, owing to their not flowering at that time, and the ornamental-foliaged plants belonging to the group *Neottieæ* were conspicuous by their absence. In spite of this, however, there were examples of no less than sixty-one *genera*.

The majority of these were epiphytes, the terrestrials being usually more difficult of cultivation, and as a rule less showy.

The greatest number were natives of tropical South America, but species from most other parts of the world were there. The proportions are represented by the following order: South America (including Mexico), East India, Malaya (including Philippine Islands), Indian Peninsula, Australia, China and Japan, Europe, North America, Africa, Madagascar.

The Indo-Malayan region would doubtless have been more strongly represented, had not several of the most important *genera* been almost out of season, such were Dendrobium, Cœlogyne and Phalænopsis.

EPIDENDREÆ.

This section formed a very large portion of the show, and perhaps the most conspicuous part of it. Among the plants of chiefly botanical interest was *Stelis muscifera* (Lindley), rather a pretty little plant for the genus, with dark red leaves and spikes of very small dull red flowers. It came from the Royal Gardens at Kew, together with its ally, *Physosiphon Loddigesii* (Lindley), a curious little plant with long slender spikes of very small pale orange flowers, the sepals of which form at the base a short tube, the points spreading in a starlike manner The tube contains and conceals the rest of the flower, after the manner of a Masdevallia, between which genus and Pleurothallis this plant seems to be a connecting link. The flowers of the specimen exhibited were of a paler colour than usual. Fine plants of the strange *Restrepia antennifera* (Lindley) were shown by Mr. Brymer and Mr. Southgate.

The ever-popular genus Masdevallia was exceedingly well represented; all sections of the genus were shown, and almost all the exhibitors showed some species, the series shown by Sir Trevor Lawrence attracting universal admiration. The *chimæra* section was illustrated by *M. Roezlii* (Rchb. f.), *chimæra* (Rchb. f.), and *Backhousiana* (Rchb. f.), three very closely-allied plants, if indeed they are not varieties of one species; and there were also plants of *M. Benedicti* (Rchb. f.), some splendid specimens of *Veitchiana* (Rchb. f.), and *Lindenii* (André), with its variety or subspecies *Harryana*, and there were plenty of plants of the smaller flowered *M. ignea* (Rchb. f.), with the varieties *aurantiaca*, *coccinea*, &c.

Other species exhibited were *M. Shuttleworthii* (Rchb. f.), and the pale variety *xanthocorys*, *ludibunda* (Rchb. f.), *Reichenbachiana* (Endr.), *psittacina* (Rchb. f.), *trochilus* (Rchb. f.), and a fine plant of *Schlimii*, with four flower spikes, *civilis* (Rchb. f.), *Houtteana*, of which a beautiful plant with numerous flowers was shown by Messrs. Vervaet, *Fraseri* (Rchb. f.), and *racemosa* (Rchb. f.), which latter, however, was hardly in bloom. There were also a considerable number of hybrids.

Among the small-flowered species the most curious were *M. Arminii*, shown by Sir T. Lawrence, *M. Estradæ*, *triangularis*, *simula* and *tridactylites*, with small brown flowers set singly on very slender wire-like stems, so as to vibrate with every breath of wind. It belongs to the *triaristella* group, remarkable for the tails being inserted below the apex of the sepals, and not a continuation of them. It was shown by Mr. Courtauld. *M. ochthodes* (Rchb. f.), with spikes of small yellow flowers, came from Kew Gardens.

The Dendrobia were not so well represented as might have been expected. This was owing, doubtless, to their earlier flowering period, many species being out of bloom. There were, however, a good number shown, including many interesting plants and some remarkably fine specimens of well-known species, among which would be noted the plants of *D. nobile*, shown by the Duke of Devonshire and Mr. Prinseps.

Of the yellow-flowered species, the most interesting were *D. densiflorum*, *Jenkinsii*, *chrysotoxum*, *D. ochreatum* (*Cambridgeanum*) and *Jenkinsii*, and *D. Harveyanum*, shown by Sir Trevor Lawrence, remarkable for the petals being decorated with fringes, while the edge of the lip is almost, and those of the sepals quite, entire. *D. Brymerianum*, in which the fimbriation of the lip is carried to its greatest development, was shown by E. Harvey and J. Southgate. *D. cruentum* has very remarkable greenish-yellow flowers, streaked with red. It belongs to the *nigro-hirsute* section, and was shown by B. D. Knox, of Caversham, and by R. Whyte, of Lee. To the same section belongs *D. Jamesianum*, a fine plant of which was sent by H. Low, who also sent a specimen of *D. Lowii*, with its singular yellow and red flowers, with a bearded lip prolonged at the base, so as to form with the foot of the column a kind of spur. It is most nearly allied to *D. cruentum*. Specimens also were shown of *Falconeri*, and its variety *Wardianum*, *Bensoniæ*, *Devonianum*, *Parishii*, *lituiflorum* and *crassinode*, and *rhodopterygium*. *D. albo-sanguineum*, with its large fawn-coloured flowers with crimson blotches in the throat, was shown by J. C. Duke. There were also plants of *D. Dalhousieanum*, and *superbum vars anosmum* and *Dearei*, the latter, a beautiful white-flowered plant, shown by Baron Schröder.

Sir Trevor Lawrence showed also specimens of two very interesting Australian species, but rarely seen in collections, viz., *D. Smilliæ* (F. Muell), one of the *dendrocoryne* section, with a large tuft of small rosy flowers with a green lip, borne at the end of a large pseudo-bulb (it has been figured in Fitzgerald's Australian Orchids), and *D. tetragonum*, first found by Allan

Cunningham. This plant is remarkable for its four-angled pseudo-bulbs, and its starlike, whitish flower, with narrow, acuminate petals and sepals, very unlike those of any other species but those of *D. amboinense* (Hook). The unusual form of the flower suggests a mimicry of the Spider Orchids of Australia, *Caladenia Patersonii*, &c.

A beautiful pan of *D. Fytchianum* from Southern India was shown by R. Ewing, of Cheshunt, with thirty leafless pseudo-bulbs, thickly covered at the summits with the delicate white flowers. One hybrid dendrobium only was shown, viz., *D. rhodostoma*, a cross between *D. sanguinolentum* and *Huttonii*. Specimens were exhibited by J. Cypher and Sir Trevor Lawrence.

Bulbophylla, as a rule, are not popular plants, owing to the small size of their flowers; but specimens of the large-flowered section, *Sarcopodium*, were shown. Sir Trevor Lawrence brought *B. siamense* and *Dearei*, which latter was also shown by C. L. Ingram, and from the Duke of Devonshire came *B. Lobbii*.

Perhaps the most curious plant in the exhibition was *Megaclinium oxypterum* (Lindley), the only species shown from the Edinburgh Botanic Gardens. The genus is allied to Bulbophyllum, especially to the *clavatum* section, having, like the species of that section, the rachis dilated into a swollen mass in which the flowers seem imbedded. In the Megaclinium the rachis is flattened, with wavy edges, curiously marbled with purple, about three inches long and nearly one in diameter. On each side of it is a row of small dull-coloured flowers. It is a native of Western Tropical Africa, and was one of the very few species shown from that continent.

From Kew Gardens came *Cirrhopetalum fimbriatum*, the only representative of that curious but not showy genus. It bore several umbels of small dull-coloured flowers, arising on slender peduncles from the bases of the leafless pseudo-bulbs; and the same establishment sent a plant of *Panisea uniflora*, a humble, inconspicuous species, with solitary dull ochreous flowers, a native of the Himalayas, perhaps more correctly referred to the genus Cœlogyne. The large genus, Eria, was illustrated by one species, and that not a conspicuous one, viz., *E. excavata*. It was sent frow Kew.

Cœlia Baueriana is a curious West Indian plant, with short, compact spikes of small white flowers beautifully scented, and overtopped by the rather thin, long and narrow leaves. There are but few species in the genus, and this is by no means the finest. It came from Kew Gardens.

Blume's genus, Dendrochilum, has been separated by Mr. Bentham in the "Genera Plantarum" into Dendrochilum and Platyclinis, which latter genus he refers to the neighbourhood of Liparis, from which genus it is abundantly distinct. To it belong the dendrochilums of cultivators, such as *D. glumaceum* and *Cobbii*. Cut spikes of the former were shown by Dr. Paterson with other cut flowers of Orchids.

The true Phaii, with leafless flower stems, were but poorly represented, *P. Wallichii* (Lindley) being the only one shown. We regretted not to see *P. tuberculosus* (Blume), which has been so successfully flowered this year by several of our best cultivators, for it is without exception the noblest of all terrestrial Orchids in cultivation at present, though also, alas! very difficult to deal with.

The genus Thunia has been reduced by Mr. Bentham to a section of Phaius; the habit, however, is so different that it would seem better to keep it as a distinct genus. It is said also that the thunias will not hybridize with the phaii, this, if put beyond doubt, would be additional evidence against the close alliance of the two *genera*. Two species were shown, *T. Marshalliana* and *T. alba* (Lindley), both closely-allied plants.

Bletia hyacinthina (Brown) was the only Japanese Orchid in the show. It was exhibited by Sir Trevor Lawrence, and is especially interesting as being the only Asiatic species of the genus, which is otherwise confined to America. It thus furnishes another example of the connection of the *floras* of North America and Eastern Asia.

There were several representatives of the small genus Chysis. Mr. Cobb, of Silverdale Lodge, Sydenham, showed *C. Limminghei* and a fine plant of *Chysis bractescens* with three flower spikes. The latter species was also exhibited by Mr. C. N. Wyatt, of Cheltenham. Messrs. Veitch showed, in a collection of hybrids, *C. Chelsoni*, a hybrid between *C. bractescens* and *C. aurea*, and *C. Sedeni*, between *C. bractescens* and *C. Limminghei*.

The genus Acanthephippium is rarely seen in collections, doubtless on account of its impatience of cultivation. It is a close ally of the preceding genus, as is evidenced not only by its structure but also by the fact that it is has been successfully hybridized with it. *A. bicolor* (Lindley), a native of Southern

India, was shown by Sir Trevor Lawrence; the flowers are rather large and fleshy, pink, white and yellow in colour.

The Cœlogynes were but poorly represented, owing to the lateness of the season, many of them, especially those of the *pleione* section being winter-flowering plants. There were, however, plants of *C. cristata* (Lindley), *nitida*, *ocellata*, and *ochracea*, and cut spikes of *C. elata* were shown by J. Southgate ; but the most interesting species was the rare *C. Parishii* (Rchb. f.), with its green flowers spotted with black, shown by Mr. J. C. Duke.

Of the genus Calanthe but few kinds were shown. *C. veratrifolia* (R. Br.), the most widely distributed of the genus, ranging from Southern India to Australia, was shown by Mr. Brymer. *C. Dominii*, hybrid between *C. furcata* and *C. masucci*, was exhibited by Mr. Cortauld.

Mr. Lee showed fine plants of *C. vestita var. igneo oculata gigantea*, and Mr. B. S. Williams brought *C. Sanderiana* (Rchb. f.), the finest perhaps of the *vestita* section. It seems strange that so few species of this beautiful genus have found favour with cultivators. There are a number of Malayan and North Indian species of great beauty which are never seen now in collections.

Among the Epidendreæ proper, *Diacrium* (*Epidendrum*) *bicornutum* (Benth.) was sent from Kew Gardens. The genus was originally made as a section of Epidendrum by Lindley, but was raised to the rank of a genus by Bentham in the "Genera Plantarum," on account of its two-horned lip being free from the column. The habit, too, is very different, and the flowers large and showy.

The true epidendrums are by no means popular among cultivators, and indeed the genus contains a very large proportion of plants with small and dull-coloured flowers. Still a considerable number of species have been in cultivation, but few have attracted much attention. A small number were shown. including *E. ibaguense* (Lindley), *E. rhizophorum* (Lindley), *E. raniferum* (Lindley), and cut spikes of *E. erectum*, shown by Dr. Paterson.

There was also a plant of *E. falcatum* (*Parkinsonianum*) shown by the Duke of Devonshire. This species is a near ally of *E. ciliare*, having like that plant large pale yellow or white flowers with a broad three-lobed lip, but it is especially interesting from its fleshy curved, almost cylindrical-grooved, leaves, recalling somewhat those of *Tetramicra bicolor*.

The Barkerias have been reduced by Mr. Bentham to a section of Epidendrum. They seem, however, to possess sufficiently distinctive characters to be kept separate. Most of the species have been in cultivation, but none were shown at the exhibition.

The Cattleyas were very extensively represented, as would naturally be imagined, and included, besides, a very large number of plants of *labiata* section, several of a more distinctly botanical interest. Among the latter were *C. Forbesii* (Lindley), shown by Sander, *C. Acklandiæ* (Lindley) and *elatior var. Leopoldi*, brought by H. Low, and *C. citrina* (Lindley), of which several plants were shown. This is probably the most northern species of Cattleya, and is unique in the genus for its oval pseudo-bulbs, glaucous leaves, and pendant half-opened flower. There were also several splendid plants of *C. Skinneri*, perfect masses of flowers.

The highly polymorphic *C. labiata* was represented by numberless forms, bearing as many names, and most of the well-known varieties were shown, the most striking of which was the fine white variety *Wageneri*, shown by Mr. Sander, who obtained a first-class certificate for it.

The whole genus was at one time referred by Professor Reichenbach to the genus Epidendrum, and indeed there are connecting links in the form of such plants as *E. Boothianum* (Lindley). Mr. Bentham has, however, kept the genus distinct, on account of the free lip embracing the column. The relations of the Cattleyas with the Lælias is also of some interest. Hitherto the number of pollinia, eight in Lælia, four in Cattleya, have been considered as sufficient to keep the two apart. In view, however, of the remarkable facts set forth in Mr. Veitch's paper on hybridization, it may well be doubted whether this view is the correct one, as the two *genera* seem to cross, in some instances at least, very readily. One of those hybrids is *Lælia bella* (*C. labiata* × *L. purpurata*), a plant of great beauty, shown by Baron Schröder.

The Lælias were of course as well represented as the Cattleyas, and included *L. purpurata*, *Schroederi elegans*, with the variety *Schilleriana*; *lobata*, shown by Sir Trevor Lawrence, and *autumnalis*, while *L. xanthina* and *cinnabarina*, shown by J. Southgate, represented the orange-flowered section.

The finest species of the small genus Tetramicra or Leptotes, *T. bicolor*, a well-known plant, with its curious fleshy terete leaves and pink and white flowers, was brought by several exhibitors.

Schomburgkia is a fine genus which was not at all represented It seems strange that such showy plants as some of the species are should be so unpopular. *Sophronitis* was out of flower, but a plant in fruit was shown by Mr. Veitch in the collection of fruiting Orchids. It will be referred to further on.

VANDEÆ.

The few Cymbidiums that are in cultivation were in many cases out of flower, but several species were shown, of which *C. Lowii* was most conspicuous, several splendid plants being exhibited. *C. Devonianum* (Lindley) was shown by Mr. Lee, and cut spikes of *C. eburneum* (Lindley) and *C. sinense* (Willd.) were sent by Dr. Paterson.

The last-named exhibitor sent also sprays of *Ansellia Africana* (Rchb. f.), one of the few African Orchids shown. A species of Grammatophyllum, which appears to be undescribed, was exhibited by the Plant and Bulb Company. It bore a loose raceme of rather large green flowers with brown spots, somewhat like those of *G. multiflorum*.

The Polystachyas are not as a rule remarkable for showiness, and have been but rarely introduced into cultivation. One species, undoubtedly the finest of the genus, viz., *P. pubescens*, a native of Africa, was sent from Kew Gardens, where it has flowered for several years. The flowers are larger than in most species, of a bright yellow, and marked with brown streaks The genus is an interesting one in many ways. In the first place, it is one of the few epiphytic *genera* which extend to both hemispheres; and, indeed, some of the South American species are closely allied to Madagascar and Indian ones. The structure of the flowers, too, is very curious. In the bud the lip is covered with short hairs, which, when the flower is open, break off and form a loose, powdery mass on the lip. That these bear some relation to fertilization by insect agency seems highly probable, but in what way is less easy to discover, as the flowers are reversed, or, to be more correct, are right way up, which is rarely the case in Orchids, so that the face of the lip looks towards the ground, the result of which is, that when the flower opens, most of the powdery mass of hair must fall to the ground.

The genus Eriopsis consists of three or four South American species, rarely seen in cultivation. *E. biloba* was shown by Mr. Roberts, of Gunnersbury Park. It bore two erect spikes of the curious pendant flowers, buff-coloured, with darker edges to the sepals and petals.

Two or three species of Anguloa were shown, including *A. Clowesii* (Lindley), with four of its strongly-perfumed flowers, exhibited by Sir Trevor Lawrence, and *A. uniflora var. maculata*, by the Duke of Devonshire. There was also a plant of what seemed a new species, shown by Baron Schröder. It had a single white flower tinted with rose, and an orange lip with a thick callus in the centre.

The curious brown-flowered *Houlletia odoratissima* (Lindley) was shown by Sir Trevor Lawrence, who also brought one of the two known species of Scuticaria, viz., *S. Hadweni*. This Brazilian plant was formerly referred to the genus Bifrenaria, but from its habit and almost cylindrical leaves, it is evidently more closely allied to the Guiana species, *S. Steelii*.

Of the true Maxillarias, several were shown, including *M. Turnerii*, by J. Southgate, *M. luteo-alba* and *triangularis* from Kew Gardens. There was also a spray of *M. aurea var. flava* among the cut flowers shown by Dr. Paterson. In quite a different style was *M. Sanderiana* (Rchb. f.), exhibited by Baron Schröder. This species bears some resemblance to *Lycaste Skinneri*, with large whitish flowers spotted with purple. It obtained a first-class certificate.

Perhaps one of the most striking Orchids in the show was a fine plant of *Luddemannia Lehmanni*, shown by Sir Trevor Lawrence, with two long pendant spikes of closely-packed yellow-brown flowers. The genus is an exceptionally interesting one, on account of its relation with Acineta, as is set forth in a note communicated at the Conference by Professor Reichenbach.

Bifrenaria was represented by the well-known *B. Harrisoniæ* (Rchb. f.), often called *Maxillaria Harrisoniæ*. Plants were shown by Mr. Brymer.

Colax jugosus (Lindley) was exhibited by the Duke of Devonshire. This beautiful and uncommon plant has been placed with the only other species of the genus under Lycaste by the authors of the "Genera Plantarum." Professor Reichenbach in the "Xenia Orchidacea" keeps it distinct, considering it related to Zygopetalum. The species shown, with its beautiful white flowers marked with purple, is far the finest of the two.

Trichopilia is a small genus of which almost, if not all, the species have been in cultivation in England or on the Continent. Three species were shown, viz., *T. coccinea* and *T. tortilis* and *T. crispa*. Of the Rodriguezias or Burlingtonias, but few are showy enough to be deemed worthy of cultivation; cut sprays of one of the best species, *B. fragrans*, were shown by Messrs. Ireland and Thomson.

The genus Cochlioda has been aptly described by Mr. Bentham as having the flowers of an Epidendrum with the pollinia of one of the Vandeæ, and the species which he includes in it have been variously ranked as Odontoglossums and Mesospinidiums. Three species were shown, *C. sanguinea* (Benth.), from B. S. Williams; *C. rosea* (Benth.), shown by Sir Trevor Lawrence; and *C. vulcanicum*, cut spikes of which were brought by Dr. Paterson.

The true Zygopetala are distinguished from the other species referred to, the genus by Mr. Bentham by their tall, many-flowered spike. Several examples were shown, including *Z. Mackayi* (Lindley), *Z. maxillare* (Lindley), and the hybrid between these two species, *Z. Sedeni* (Rchb. f.).

The section *Warscewiczella* was represented by *W. velata* (Rchb. f.), a plant of which, shown by Sander, bore numerous beautiful violet blooms. The larger-flowered Pescatoreas are referred by the authors of "Genera Plantarum" to the same section. *P. Lehmanni* was shown by J. Southgate, and a flower of *P. Gairiana*, was shown by Messrs. Veitch.

The Promeneas, including Kiefersteinia, form a section characterised chiefly by their smaller size. *P. citrina* (Lindley), with bright yellow flowers, was shown by Baron Schöder; and *Kiefersteinia graminea* (Rchb. f.), with curious green flowers with red spots, was exhibited by Sir Trevor Lawrence. Three species of the section *Bollea*, including *B. Patini* and *Lalindei*, not yet in flower, were shown by Mons. Vervaert, of Ghent. *Lycaste Skinneri* (Lindley) was shown in plenty and in every variety, the white and rose colour of the flowers being very variously distributed in the different forms. A beautiful series was shown by Mr. H. Little. More interesting, botanically, was *L. Lawrenceana* (Rchb. f.), shown by Sir Trevor Lawrence, with green mottled petals and sepals, and a fawn-coloured lip with a white edge.

The genus Acineta was represented by *A. Humboldtii*, shown by the Duke of Devonshire.

The Odontoglossums vied with the Cattleyas in obtrusiveness at the show. All sections were represented, and the number of specimens of some of the species shown was very large. Of these none were more extensively exhibited than *O. crispum* (Lindley), *alias O. Alexandræ, Bluntii*, &c. This ever-popular plant was to be seen with every variety of colouring and under innumerable names, and afford an excellent example of the difficulties of a systematic botanist in dealing with an easily-grown and variable plant, the synonomy of which is already very extensive and is still on the increase. No genus requires more revision than this one. At present it is credited with upwards of one hundred species, many of which are probably mere cultural varieties, or natural hybrids. *O. Pescatorei* (Lindley), a near relative of *O. crispum*, was also extensively exhibited, and is equally overloaded with nomenclature. Even more critical are the brown and yellow-flowered section, cf which *O. triumphans* (Rchb. f.), *Hallii* (Lindley), and *hebraicum* may be taken as types. Very many of these were shown, forming a bewildering study to the systematic botanist. Among the rarer and more interesting species were *O. pulchellum, læve coronarium*, and *facetum*, shown by Sir Trevor Lawrence, *O. Oerstedii* (Lindley), and *Cervantesii* (Lindley), by J. Southgate; and there were plenty of specimens of *O. Rossii* and *citrosmum*, and the acuminate-petalled *O. gloriosum, nævum*, and *cirrhosum*. There were no Miltonias shown, but the connecting links between that genus and Odontoglossum, in the shape of the broad-flowered odontoglots, *O. vexillarium* and its allies, were very plentifully exhibited.

The Oncidia were almost if not quite as numerous as the Odontoglossa. Of the *cyrtochilum* section were shown *O. Kienastianum* (Rchb. f.) by Rev. J. B. Norman, *superbiens* (Lindley) by J. Southgate, *serratum* (Lindley) and *macranthum* by Mr. Cortauld, and several other species. The terete-leaved section was represented by *O. juncifolium*, referred by Dr. Lindley to a variety of *O. cebolleta* (Swarz), one of the most widely distributed of Oncidia. It was shown by Sir Trevor Lawrence, who also sent *O. bifolium* (Lindley). Other interesting species were *O. Edwardsii* (Rhcb. f.), of which several plants were shown with large panicles of the small purple flowers; *O. pulchellum* (Lindley), with small white and rose-coloured flowers, was shown by Sir Trevor Lawrence and Baron Schröder; *O. concolor* (Lindley), *Marshallianum, sphacelatum*, and *cucullatum* were also exhibited. Perhaps the most aberrant species of the genus is *O. papilio* (Lindley), of which two or three plants were shown. It is a variable plant, and more than one variety has received a distinct specific name. Apart from the unique form of the flower, it is very interesting on account of its mimicry of a butterfly, such as one of the *heliconii* of its native forest. Unlike most species in the genus the flowers are solitary, which adds to the illusion. The only parallel instance of real mimicry of an insect known to me is in the well-known genus Ophrys. In both cases the resemblance is more suggestive than exact.

The beautiful monotypic *Ada aurantiaca* (Lindley) was represented by several well-flowered plants and cut spikes.

The Brassias were not at their best, but specimens of three or four kinds were shown, including sprays of *B. verrucosa* (Lindley) from Messrs. Ireland and Wilson, *B. Lawrenceana* (Lindley), by Dr. Paterson, and a plant of *B. Keiliana*, one of the finest species, was shown by Mr. Smee, as one of a group of plants which had been grown for nearly four months, from July to October, 1884, in the open air without detriment. Like the rest of the group, which comprised *Odontoglossum crispum* and *Rossii*, it appeared quite strong and healthy.

The beautiful and delicate *Ionopsis utricularioides* (Lindley) was shown by Sir Trevor Lawrence and by the Plant and Bulb Company. Phalænopsis was rather past its prime, but several interesting plants were exhibited, including the rare *P. tetraspis* (Rchb. f.), from the Himalayas, shown by Mr. Cobb ; *P. Parishii* (Rchb. f.), a very beautiful miniature species with small rose and white flowers, few leaves and remarkably broad flat green roots, came from Kew Gardens. *P. Luddemanniana* was shown by Mr. Brymer.

A plant of *Renanthera coccinea* (Lindley) was exhibited by the Duke of Devonshire, but it was not yet in flower.

Sarcochilus Hartmanni (Fitzg.) was one of the few Australian Orchids shown. It is and was the sole representative of the genus, unless we follow Mr. Bentham and include in it the beautiful *Camarotis purpurea* (Lindley), of which a fine plant was shown by Sir Trevor Lawrence.

There were several species of the beautiful genus Aerides, including *A. Veitchii*, *Lobbii*, and *Houlletianum*, shown by Sir Trevor Lawrence, the latter also by Mr. Lee, and sprays of *A. roseum*, *rubrum*, and *Fieldingii*, were among the cut flowers of

Dr. Paterson, and *A. Warneri* among those of Messrs. Ireland and Thomson.

The allied genus Saccolabium was also well represented. Plants of *S. ampullaceum* (Lindley) were shown by Sir Trevor Lawrence, J. Southgate and Mr. Brymer. The latter showed also *S. retusum* (Lindley). *S. gemmatum* (Rchb. f.), a narrow-leaved plant with slender spikes of very small rose-coloured flowers, was sent from Kew Gardens. *S. præmorsum* (Lindley) was shown by Mr. Cypher.

The genus Cleisostoma consists for the most part of somewhat insignificant looking plants. One species, *C. crassifolium*, was exhibited by Sir Trevor Lawrence.

The Vandas were not numerous as regards specimens, but several species were shown, including, *V. suavis*, *insignis*, and *tricolor*, *V. cærulescens*, shown by B. S. Williams and Baron Schröder, and belonging to the same section; the curious white-flowered *V. Denisoniana* was represented by several specimens. Two plants of *V. teres* (Lindley) were shown by Sir Trevor Lawrence and Mr. Brymer.

The large genus Angræcum was but poorly represented. Probably there is not sufficient variety in the species to make them welcome to the cultivator, for although at one time or another a considerable number of kinds have been introduced, but few are able to hold their own against the more showy *genera*. It is true, moreover, that most of the early species were out of bloom, and the later ones, such as *A. Ellisii* (Rchb. f.), were not yet in flower, the result of which was that the only species shown was *A. sesquipedale* (Thouars), flowers of which were shown by Dr. Paterson.

NEOTTIEÆ.

But few plants of this section of Orchids have been in cultivation, and fewer still are popular in these days, when brilliant and large flowers are the prevailing fashion. The group contains, however, a number of beautiful foliage plants, such as the Anæctochili and Dossinia. These were entirely absent from the exhibition, perhaps because on account of the difficulties attending their cultivation they have been supplanted by easier grown foliage plants of other orders. The genus Sobralia is almost the only other popular one of the section. It was, however, hardly in bloom at the time of the exhibition, and so was not represented. Specimens of two *genera* were shown, viz., Ponthieva and Vanilla; fruits, leaves and flowers of the latter were exhibited by Mr. Cookson among the fruiting Orchids. The pods were large, and of a fine dark brown or chocolate colour and deliciously scented. A plant of *Ponthieva maculata* (Lindley) was sent from Kew Gardens, where it has been cultivated for some years. This is the showiest of the genus, and is remarkable for being probably the hairiest plant of the order.

OPHRYDEÆ

Is another unpopular section, for which also the season was rather too early. Four *genera*, however, were represented. Lady Howard de Walden, of Mote Park, Maidstone, exhibited several species of Serapias from Italy, including *S. lingua* (Lindley) and *cordigera* (Lindley), and a plant of *S. parviflora* (Parl.) was sent from Kew. The above-mentioned lady showed also *Ophrys Bertolonii*, one of the most beautiful and curious of the Insect Orchids. These plants had flowered for two years in succession, but, perhaps owing to the colder and duller climate of England, the flowers of the Serapias were rather pale in colour. From Mr. Ware, of Tottenham, came *Orchis papilionacea* (Lindley), a beautiful and interesting South European plant, which forms a connecting link between the *genera* Orchis and Serapias, having indeed been successfully hybridized with the latter genus.

Two or three plants of the largest flowered of all Ophrydeæ, *Disa grandiflora* (Lindley), were exhibited, but not in flower.

CYPRIPEDEÆ.

There are few *genera* more popular than Cypripedium and Selenipedium, almost all the species known having been in cultivation at one time or another, and most at the present day.

The cypripediums proper are most naturally divided into those of temperate and those of tropical regions. The former are easily recognized by their leafy stems, the latter having a rosette of leaves from which arises a naked scape bearing usually a single flower.

Of the temperate species, Messrs. Paul and Son showed *C. pubescens* (Lindley), a North American species resembling, but rather inferior in colouring to, our British species *C. calceolus* (Lindley), which was shown by Mr. Ware, together with *C. parviflorus* (Lindley), also a North American plant.

The tropical species were, however, the most extensively shown, upwards of twenty species and numerous hybrids being exhibited. The most highly admired was the new *C. Godefroyæ* (Rchb. f.), a beautiful plant, allied to *C. niveum* (Lindley), but with a larger and broader flower, white spotted with purple. It is a native of Cochin China, and was exhibited by Baron Schröder and Mr. Lee. Both its allies, *C. niveum* (Lindley) and *concolor* (Hook), were also shown. *C. Druryi* (Beddome), with its curious yellow flowers, is interesting, as being one of the most western of the Old World tropical species, being a native of Southern India. Another Indian species is the well-known *C. insigne* (Wall.), of which numerous specimens and varieties were shown. Other species were *C. Dayanum* (Rchb. f.), *ciliolare*, shown by Sir Trevor Lawrence and Mr. Low; *Hookeri*, *Lowii*, *lævigatum* and its ally *Stonei*, with the curious variety *platytænium*, shown by Mr. W. Lee; *C. Argus*, from Mr. Williams; *C. Parishii*, from the Plant and Bulb Company; and several other well-known plants and many hybrid forms, of which the best series were those shown under the class for hybrid Orchids, by Messrs. Veitch.

Of the South American genus Selenipedium, there were shown numerous specimens of *S. caudatum* (Rchb. f.) and its variety *roseum*, *S. longifolium* (Rchb. f.), and *Schlimii* (Rchb. f.), and, most curious of all, *Uropedium Lindeni*, which it seems hardly possible to doubt is a persistent monstrosity of *S. caudatum*. The reduction of the lip to a petal-like organ is not a very uncommon malformation in Orchideæ, occurring at times all through the family, and it seems in some instances to be persistent—*e.g.*, in *Paxtonia rosea* (Lindley), a monstrosity of a species of Spathoglottis, and in the Uropedium.

There were a few special exhibitions which call for some remarks. A number of drawings in water colours and oils, and a few photographs, by various artists, were shown, mostly representing, however, common or well-known plants. The best were by Miss Woolward, and included the picture of an apparently new species of Masdevallia, belonging to the unequal-petalled section, but with small flowers. Mr. Smee showed a series of Orchids which had been exposed to the open air for four months in the autumn, apparently without injury. Among them was *Dendrobium Devonianum* with a pseudo-bulb six feet and a-half in length. When it is remembered that several of the

Odontoglossa ascend the Andes almost to the snow line, and that the little *Epidendrum conopseum* can endure the cold winters of Georgia and Louisiana, we may yet hope in time to obtain epiphytic Orchids which can be grown in the open air, at least in our south-western counties.

A very interesting series of Orchids in fruit was shown by Messrs. Veitch. The study of the forms of the capsules of Orchids has been hitherto too much neglected, and, indeed, the fruit of many even well-known *genera* have not yet been described. One reason for this is to be found in the fact that botanical collectors rarely obtain complete specimens of Orchids with both fruit and flowers, and without the latter it is almost impossible to identify the plant, and, furthermore, the fruits are a good deal injured by pressing, and their form rendered difficult to make out.

The capsules of most Orchids consist of six valves in two whorls, the outer ones are narrow and barren, while those of the inner series are broad and bear on their inner service the placentas with the minute circles. These valves bear, usually, ridges running down the middle, and commonly the outer valves are reduced to the ridges only, in the form of slender ribs alternating with the broad seed-bearing inner valves. Sometimes the valves and their ridges are nearly equal and sometimes the ridges are absent. Besides variations in these respects, the first varies in shape and outline, it may be long and narrow as in the Vanilla, or short and thick as in Cattleya. Usually the placentas do not run the whole length of the capsule, but between their termination and the base of the column is a larger or shorter portion, which is generally narrower than the body of the capsule and forms a kind of beak.

These various forms were well illustrated by the exhibits of Messrs. Veitch, Smee and Cookson. The long, narrow, pod-like form was represented by the fruits of *Vanilla planifolia*, almost cylindrical, with no ridges and only grooves to mark the six-partite origin of the fruit. They were quite soft and pulpy, of a rich chocolate brown, and deliciously scented. *Phalænopsis Schilleriana* has also a long pod, about four inches in length, cylindrical, thicker and shorter than that of Vanilla, and with more distinct grooves. Cypripedium has also a sub-cylindrical elongate fruit.

Sophronitis grandiflora has an elongate fruit with distinct ridges and a very conspicuous beak.

In *Oncidum Forbesii*, the fruit is somewhat like that of Sophronitis in shape, but thicker and with more distinct ribs and a shorter beak.

Chysis bractescens has a thick sub-cylindric capsule with thick blunt ridges. In *Vanda insignis*, the fruit is straight and thick, six-sided, with no beak. The fruits of *Odontoglossum Pescatorei* and *O. radiatum* have rather indistinct ridges, being elongate and triangular in section. *Angræcum sesquipedale* has a rather long pyriform fruit, with indistinct ridges and no beak. In *Dendrobium Findleyanum* the fruit is rather long-shaped but has no beak, and the ridges are somewhat obscure. *Aerides quinquevulnera* and *Masdevallia tovarensis* have each a short thick beakless fruit, that of the former being rather large in proportion to the flower. The Cattleyas and Lælias have pendulous thick and short fruits with distinct beaks, and the ridges prominent and blunt, nearly equal, with deep and broad depressions between them. Those of *Cattleya Trianæ*, *Lælia anceps*, and *albida* were shown. Very similar in form are the fruits of Lycaste; the ribs, however, were stouter and blunter in the species shown, viz., *L. Skinneri* and *Deppii*.

W. Macdonald, Esq., of Perth, sent a plant of *Phalænopsis Stuartiana* (Rchb. f.), on the roots of which three young plants had appeared. This is not the first time this very unusual phenomenon has appeared on a Phalænopsis. Professor Reichenbach mentions an analogous case in a communication read at the Conference, and a similar specimen was grown a short time ago by Major Lendy.

This method of reproduction is more common in dicotyledonous plants, especially in tree or shrubby plants, and is the rule rather than the exception in some trees, such as the Balsam Poplar.

H. N. RIDLEY.

W. S. Johnson, "Nassau Steam Press," 60, St. Martin's Lane, Charing Cross, W.C.

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THE REPORT
ON THE
PRIMULA CONFERENCE,

HELD AT
SOUTH KENSINGTON
On APRIL 20th and 21st, 1886,
AND ON THE
ORCHID NOMENCLATURE CONFERENCE,

HELD AT
LIVERPOOL
On JUNE 30th, 1886.

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CONTENTS.

THE PRIMULA EXHIBITION AND CONFERENCE.

PAGE

Introduction .. 161

The Exhibition—

I. Primroses in General .. 167
List of Exhibitors .. 175
Awards .. 176, 180
II. Special Show of the National Auricula Society, Southern Section .. 177

The Conference—

Introductory Address by the Chairman .. 187
Report of the Secretary to the Conference .. 189
Objects exhibited .. 189, 213
Short Communications .. 189–190
Seeds distributed .. 189
Mr. Shirley Hibberd on the "Origin and History of the Florist's Auricula" .. 191

Discussion—

Sir Joseph Hooker .. 208
Mr. J. G. Baker .. 209
Professor M. Foster .. 214
Mr. Lynch .. 215
Mr. Douglas .. 215
Mr. Bolton .. 215
Mr. Fraser .. 216
Mr. Potter .. 217
Mr. Hibberd's Reply .. 217
Mr. Churchill on the "Origin of the Auricula"; (Paper Contributed to the *Gardeners' Chronicle* subsequent to the Meeting of the Conference) .. 217
Rev. Francis D. Horner on "Improvement of the genus Primula." Read in abstract by Mr. Bolton .. 220

Discussion—

The Chairman .. 230
Mr. Burbidge .. 231

PAGE
Mr. Bolton 231
Mr. R. Dean 233
Mr. J. G. Baker—"Synopsis of the European Species of Primula, with their Distribution" 233
Dr. Masters on the "Root Structure and Mode of Growth of Primulaceæ, in relation to Cultivation" 236

Discussion—

The Chairman 254
Mr. Jenkins 256
Mr. G. F. Wilson 258
Mr. F. Moore 258
Mr. George Paul 259
Rev. C. W. Dod 259
Mr. Fraser 261
Votes of thanks 262

Appendix—

Diseases of Primula, by Mr. W. G. Smith 265
Mr. Stein's List of Cultivated Primroses.. 268
New Chinese and Tibetan Species, by M. Franchet 272
New Classification of Primula, by M. Van Tieghem 273
Synonymic List of all Known Species and Recognized Forms of the Genus Primula, by Mr. Daniel Dewar 275

THE ORCHID NOMENCLATURE CONFERENCE.

Introductory Address by the Chairman 297
Mr. H. N. Ridley on "Orchid Nomenclature" 298

Discussion—

Dr. Masters 302
Mr. Enoch Harvey 304
Mr. Shirley Hibberd.. 305
Mr. Goldring 306
Mr. Ridley's Reply 307
Professor M. Foster 307
Mr. Lynch 309
Concluding Remarks by the President 310
Vote of Thanks 312

INTRODUCTION.

THE PRIMULA CONFERENCE.

This Meeting, held on April 20th and 21st, 1886, in one of the crush rooms of the Royal Albert Hall, adjoining the Conservatory of the Royal Horticultural Society, was one of a series of meetings designed for the purpose of collecting and diffusing information on various branches of Horticultural science and practice, and of interesting the Fellows and the general public in the work of the Society. Previous meetings of a similar character had been devoted to the Exhibition of Apples from all parts of the empire (*see* "British Apples, Report of Committee," Macmillan, 1884), to a similar display of Pears, to Exhibitions of, and Conferences on, the species and varieties of Narcissus. A similar Exhibition of Orchids was held in association with a public meeting, whereat Papers were read and a discussion held on points of scientific and practical importance in connection with the cultivation of this popular class of plants. (*See Journal Royal Horticultural Society*, Vol. vii., Part 1.) All these meetings proved successful from the point of view of practical Horticulture, and created considerable interest among the public. With a view of doing yet further service, the Council of the Society decided to avail themselves of the occasion of the Annual Exhibition of the National Auricula Society to hold a conjoint Exhibition, in which not only should Auriculas and other "Florists' Flowers" of like character be represented, but also as complete a collection formed as could be got together of species and varieties of the genus Primula and its near allies. With this view the following programme was issued, and communications were opened up with cultivators of these plants at home and abroad :—

Class I.—The Auricula.
,, II.—The Primrose and Polyanthus.
,, III.—Varieties of Primula Sieboldi.
,, IV.—Varieties of Primula sinensis.

Class V.—European species, varieties and hybrids of the genus Primula.
,, VI.—Himalayan and other Asiatic ditto ditto.
,, VII.—Chinese and Japanese ditto ditto.
,, VIII.—American ditto ditto.
,, IX.—Plants allied to the genus Primula, such as Cyclamen, Dodecatheon, Androsace, Cortusa, &c. (of these species only, not garden varieties, will be admitted).
,, X.—Primulaceous Plants grown to illustrate special modes of culture, &c.
,, XI.—Specimens, Models, and Drawings, illustrative of the structure and mode of growth of Primulaceous Plants.

The first four classes were more especially provided for by the Committee of the National Auricula Society.

For the purpose of carrying out the latter part of the programme (Classes V. to XI.), and for organizing the Conference, a Committee was formed, consisting of the following gentlemen:—

President of the Conference.
John T. D. Llewelyn, F.L.S.

Chairman of Committee.
Dr. Michael Foster, F.R.S.

Corresponding Foreign Secretary.
Dr. Maxwell T. Masters, F.R.S.

Secretary to the Committee.
James Douglas, Great Gearies, Ilford.

Committee.

Barlow, Samuel.
Baxter, W. H.
Baker, J.G., F.R.S.
Backhouse, Jas., Jun.
Beddome, Colonel, F.L.S.
Boyd, Jas., Jun.
Brockbank, William, F.L.S.
Burbidge, F. W.
Cannell, Henry.
Clarke, Col. R. Trevor.
Clark, L.
Churchill, G. C., F.L.S.
Dean, R.
Dod, Rev. C. Wolley.
Ewbank, Rev. H.
Elwes, H. J., F.L.S.
Franklin, T. M.
Fraser, John.
Fraser, Patrick Neill.
Godman, F. du Cane, F.R.S.
Henderson, Andrew.
Hibberd, J. Shirley.
Hogg, Robert, LL.D., F.L.S.
Horner, Rev. F. D.
Hill, E.
Jeykll, Miss G.
Loder, Edmund Giles.
Latham, W. B.
Laing, John.
Lawrenson, Mrs.
Lindsay, Robert.
Lynch, R. Irwin.
Macleay, Sir George.
Maw, George, F.L.S.
McIntosh, James.
Moore, Thomas, F.L.S.
Moore, F. W.
Owen, Miss C. M.

Paul, George.
Poë, J. T.
Rolt, H. A.
Sharman, C. H.
Sutton, Arthur.
Turner, Harry.
Tyerman, J.
Tymons, Rev. F.
Veitch, Harry J., F.L.S.
Walker, A. O., F.L.S.
Ware, T. S.
Waterer, Anthony.
Worsley, Philip.
Williams, B. S., F.L.S.
Wilson, Geo. F., F.R.S.

The co-operation of the following foreign and colonial botanists and cultivators was also requested, and many of them favoured the Society with their assistance in various ways:—

Prof. Dr. Eichler, Berlin.
Prof. Dr. Wittmack, Berlin.
Prof. Dr. Engler, Breslau.
Herr Inspector Stein, Breslau.
Herr Inspector Max Kolb, Munich.
Herr Max Leichtlin, Baden-Baden.
Prof. Dr. Kerner, Vienna.
Herr F. Maly, Vienna.
Prof. Dr. Willkomm, Prague.
Prof. Dr. Peyritsch, Innspruck.
Herr Dr. V. Borbás, Buda.
Prof. Dr. Kanitz, Kolozsvar.
Prof. Crèpin, Brussels.
Prof. Lange, Copenhagen.
Prof. Max Cornu, Paris.
M. Naudin, Antibes.
M. H. de Vilmorin, Paris.
Prof. Planchon, Montpellier.
M. Correvon, Geneva.
M. Otto Förster, Scheibbs, Austria.
M. Froebel, Zurich.
Prof. Caruel, Florence.
Mr. Groves, Florence.
M. Witte, Leiden.
M. Krelage, Haarlem.
Prof. Dr. Henriquez, Coimbra.
Dr. E. de Regel, St. Petersburg.
Prof. Dr. Lindberg, Helsingfors.
M. Boissier, Valleyres.
M. A. de Candolle, Geneva.
Prof. Asa Gray, Harvard, Mass.
Dr. Lawson, Halifax, N. S.
Dr. Thurber, New York.
Prof. Meehan, Philadelphia.
Dr. George Watt, Calcutta.
Dr. King, Calcutta.
Dr. H. Trimen, Peradenyia.
Dr. Treub, Buitenzorg.

As to the Conference, it was arranged that the following Papers should be prepared and read at the meeting, and that a discussion on them should be invited, such discussion being facilitated by the circulation beforehand of copies in proof among those most likely to take part in the discussion:—

1. "The Origin and History of the Florists' Auricula." Introductory Paper, by Mr. Shirley Hibberd.
2. "In what directions should efforts be made with the view of improving the Florists' Flowers belonging to the genus Primula?" Introductory Paper, by Samuel Barlow, Esq., J.P.
3. "The Nomenclature of Alpine Primulas." Introductory Paper, by Mr. J. G. Baker, F.R.S.
4. "Culture of Hardy Primulas." Introductory Paper, by Dr. Maxwell T. Masters, F.R.S., on root-structure, and mode of growth, as affording indications of the probable best methods of culture.

It was originally arranged that the second paper on the list should be prepared by Mr. Barlow, of Stakehill, near Manchester; but that gentleman being precluded by other engagements from undertaking the task, the subject was treated of by the Rev. Francis D. Horner.

The following pages comprise an account of the Exhibition, a report of the proceedings at the Conference, together with a list of the species cultivated in British gardens, drawn up by Mr. Dewar, of the Royal Gardens, Kew, and other documents connected with the nomenclature and literature of the genus Primula.

The Council of the Royal Horticultural Society are under great obligations to the Exhibitors, to the Readers of Papers, and others, who contributed to the success of the meeting, and to Mr. Churchill for his kindness in revising the botanical lists. They desire to tender their special thanks to the Proprietors of the *Gardeners' Magazine* and of the *Gardeners' Chronicle* for the use of the illustrations, and to Dr. Masters, of the *Gardeners' Chronicle*, for his very valuable assistance in connection with the publication of this report.

THE ORCHID NOMENCLATURE CONFERENCE.

At the Orchid Conference, held at South Kensington on May 13th, 1885, a discussion took place on the subject of "Orchid Nomenclature," in which several well-known Horticulturists took part. At the close of the discussion, which is published in the Report of that Conference, p. 62, it was agreed to defer further consideration of the question to a future date, chiefly with a view to obtain the opinions of Professor Reichenbach on the subject. It was hoped by the members of the Committee that on the occasion of the Liverpool Horticultural Show that the Professor might be induced to come over to England and to go into the question in a systematic manner. Unfortunately they were again disappointed, as Professor Reichenbach was unable to visit England at that time. This being so, it devolved upon the members of the Orchid Nomenclature Committee during the discussion to point out a few of the difficulties of the subject, and to call attention to the irregularities in naming which have been creeping in, especially during the last few years, and to suggest various means by which they might be ameliorated. There was a very fair attendance at the Conference, and an interesting discussion took place, which is now printed *in extenso*.

The thanks of the Council of the Royal Horticultural Society are due to Mr. H. N. Ridley, B.A., Assistant Keeper, Department of Botany, Natural History Museum, for his valuable assistance in connection with this subject.

WILLIAM LEE,
Secretary, Royal Horticultural Society.

South Kensington,
October, 1886.

THE EXHIBITION.

PRIMROSES IN GENERAL.

(Classes V.—XI.)

The Exhibition was large and varied, although the cold, which had been so prevalent in this country and on the Continent shortly before the Exhibition, exerted an unfavourable effect on the plants. Living plants from the Continent especially were scantily represented, while some sections, as of the Chinese Primrose, were inadequately or not at all represented. This was the more unfortunate, botanically, for while in Auriculas the enormous amount of variation is due to the intercrossing of different species and varieties, the numerous forms of *P. sinensis* are all derivatives from one uncrossed species, and therefore better adapted to show the limits of variation.

The best show, among British Exhibitors, was made by the veteran Alpine plant growers, Messrs. Backhouse, of York, whose collection as a whole was ahead of the others, and which was enriched by many rare species. Next to this, so far as size of plants was concerned, may be placed that from the Edinburgh Botanic Garden, and then came the collection from the Royal Gardens, Kew—the nursery trade being well represented by Messrs. Paul and Son, The Old Nursery, Cheshunt; Mr. T. Ware, Hale Farm, Tottenham; Messrs. J. Veitch and Sons, Chelsea; and Mr. Dean, Ealing.

The exhibits made by private growers were not numerous, but, consisting as they did of the more popular kinds in good flowering condition, they made a more generally attractive show than some of the larger collections.

Botanic Gardens.

Royal Gardens, Kew.—This was a most interesting collection, reflecting great credit on Mr. Dewar, the foreman of the hardy plant department, but the plants were later than most others. The rich collection of Primulas shown numbered in all, including species, varieties and hybrids, no fewer than 118, a large percentage of which were nicely in flower. Of the more imposing species, such as the sweet-scented Primula verticillata var. Boveana, P. obconica, P. japonica, P. involucrata, &c., large groups were staged, as well as few fine healthy pans of P. cortusoides var. amœna, P. rosea, &c., which much enhanced the appearance of the collection as a whole. Among the principal forms to attract attention, taking them mainly in alphabetical sequence as in Mr. Dewar's list, were the handsome P. admontensis, a cross between P. Clusiana and P. Auricula, which appears to be an easily grown plant, and from its free-flowering propensity one likely to take the place of the first-named parent, which is very uncertain in its flowering; P. algida, represented by a good specimen; P. Allioni by a remarkably deep rose-flowered form; the hybrid P. alpina, P. Auricula, and the var. Balbisi. A form of P. auriculata, with deep rosy flowers, attracted considerable notice; the specimen had a dozen flower-heads of good form. P. calycina was a healthy plant not then in flower; P. carniolica, an excellent plant for show, had three flower-heads; and worthy of notice were a few fine forms of P. denticulata, with the varieties cashmiriana, Henryi, pulcherrima, and erosa, which latter received a first-class certificate. Its flowers are like those of P. denticulata but larger and deeper in colour; P. Dinyana, a cross near to integrifolia, with lovely dark flowers, was shown in excellent condition. A few forms of the Oxlip, some of which were very curious, were also exhibited. A fine piece of P. Facchinii (minima × spectabilis), with large rosy flowers, with a white ring round the eye, and two forms of P. scotica were in good condition, as also was P. floribunda. A few fine specimens of P. Göblii, a hybrid (superauricula × villosa), of a beautiful and striking colour, and P. integrifolia, typical, from the Pyrenees, excited much interest, as did also two healthy specimens of P. longiflora, one with an unusually long tube; and a fine pan of P. longiscapa luteola, just opening its buds, the plants very robust. Four very distinct forms of P. marginata, P. media, a hybrid between officinalis and elatior; minima, a fine strong patch, just showing flower; mistassinica, a small North American species in the way of farinosa; mollis, a charming Himalayan species; Muretiana (subintegrifolia × viscosa); Obristi, a yellow-flowered hybrid between P. Balbisii and P. Auricula, but nearer the former, with long flowerstalks, and charming clear yellow flowers, were all deserving of note. P. Olgæ is a new Turkestan species of special merit. P. Peyritschii (subauricula × graveolens), known in gardens as viscosa major, is an excellent garden plant of free growth. P. Portæ (subauricula × daonensis) is also an acquisition, it is to all appearance a handsome form of pubescens. P. rosea, and the variety grandiflora, large pans of which were shown, were both in excellent condition, the variety is remarkable for the larger size and colour of its flowers. P. Rusbii, a new species from Northern Mexico, said to be hardy, was also shown. P. sikkimensis, P. spectabilis, with its varieties Clusiana and Wulfeniana, P. Stuartii and var. purpurea, P. suffrutescens, a shrubby species from California, P. tyrolensis, P. venusta, a most charming hybrid; P. viscosa, the typical plant collected by Mrs. Dyer in the Pyrenees, with its varieties ciliata, commutata, decora, hirsuta, latifolia, pedemontana, and an excellent pan of the beautiful white-flowered P. viscosa var. nivalis were all worthy of comment. A large pan of the common Primrose was not the least beautiful feature of the group, which also included an interesting cross between the Oxlip and the Primrose.

In the Synonymic list drawn up by Mr. Dewar, and printed at the end of the Report of the Conference, those species and varieties which were exhibited from Kew are marked with an asterisk(*).

Glasnevin.—Preparations had been made to send a good set from the Glasnevin collection, but the late season, followed by a severe hailstorm, rendered it impossible to send a representative collection. Amongst those sent, numbering eighteen, were several species of interest, such as Primula erosa, of which only one other plant was exhibited; P. integrifolia, P. Dinyana, P. calycina, P. spectabilis, P. Wulfeniana, P. Göblii, P. pubescens, a pretty variety of P. emarginata, a fine dark form of P. cashmiriana, and a nice pan of P. ciliata purpurea. There was also a good plant of the somewhat scarce blue Polyanthus.

Edinburgh.—This collection, brought by Mr. Lindsay, the Curator of the Gardens, ranked second in point of merit, comprising, as it did, a great variety of rare forms, and of older ones that were well flowered. There were P. prolifera syn. imperialis, P. Kitaibeliana (var. of P. spectabilis), a rare Croatian species, with a star-like lilac-coloured bloom; a fine seedling form of P. obconica, P. ciliata var. Balfouriana, with crimson-purple flowers—a gem; an unnamed species of Primula from the Himalayas, which received a first-class certificate; P. rotundifolia, and P. mollis.

The following is a list of the species and varieties shown in his fine collection:—

Primula acaulis var.
,, Allioni
,, auriculata (4)
,, ciliata purpurata
,, ,, seedling (2)
,, ,, Balfouriana (2)
,, Clusiana
,, decora, = Arctotis, Kerner
,, denticulata purpurea (6)
,, ,, rosea
,, elliptica
,, floribunda
,, grandiflora rosea
,, graveolens
,, helvetica
,, inflata
,, integrifolia (2)
,, intricata
,, Kitaibeliana
,, minima
,, mollis
,, marginata
,, ,, var.
,, minutissima
,, obconica var. Normandi (raised by G. H. Normand, Esq., Whitehill, Aberdour, Fife)
Primula nivalis, seedling
,, Polyanthus (good seedling)
,, Parryi
,, Peyritschii
,, prolifera
,, rosea
,, purpurea
,, denticulata erosa
,, scotica
,, similis
,, Stuartii
,, Steini
,, viscosa
,, ,, nivea
,, Warei
,, Wulfeniana
No. 177. Himalaya
Mr. Calder's (Canonmills, Edinburgh) seedlings from P viscosa
Androsace carnea (2)
,, eximia
,, foliosa
,, Laggeri
,, rotundifolia macrocalyx
Soldanella montana

NURSERYMEN.

Messrs. Backhouse and Son, York.—This collection was an admirable one, and included among others the following:—Primula marginata in various forms, viz., the typical form, P. m. cœrulea, the nearest approach to a blue colour in Primulas, a rose-coloured form, and two others. All of these were full of flower, and being early were in good condition. Of rare kinds were P. Allioni, with sturdy rosettes of roundish spatulate leaves, and bright purple flowers, borne on very short stems; P. Balbisii, a species with yellow scentless flowers; P. Facchinii, very dwarf, with rosy flowers; P. minima, to which the previously named species is allied; P. glaucescens, with rose-coloured flowers and glossy leaves; P. spectabilis, a fine rock plant, with rosy flowers and glabrous entire leaves; P. coronata (minima × spectabilis); P. Flœrkeana, with blush flowers; and the Himalayan P. floribunda. P. farinosa, and P. f. acaulis, the stemless variety, are both pretty on the rockwork, as they produce masses of bright pink flowers. P. japonica is now well known as a border plant of a showy kind. Several varieties of P. denticulata were shown, as well as P. Dinyana, P. Göblii, a variety of P. Auricula to which great interest attaches as a possible source of the florists' Auricula; the fine North American P. Parryi, with magenta flowers on tall stalks; P. pubescens, similar to P. ciliata but with larger heads of pink flowers; P. Auricula var. marginata, an interesting variety with white-powdered leaves having a pale white margin and bright yellow flowers in clusters; P. admontensis ×, and P. Kitaibeliana. Many other species and varieties of Alpine plants were shown by Messrs. Backhouse and Sons.

Messrs. Paul and Son, The Old Nursery, Cheshunt, showed mainly species and hybrids of European origin, such as P. viscosa in several forms, as found on the Swiss, Italian, and Pyrenean mountains; P. acaulis, the wild Primrose, a purplish-coloured variety; P. integrifolia, a pretty purplish-rose; P. Facchinii, P. villosa, with large rose-coloured blooms; P. Clusiana, with carmine flowers on stalks five inches high; P. Churchilli; P. intermedia; P. Obristi, yellow, with mealy foliage; P. elatior; P. Auricula purpurea, with glaucous foliage, flowers brownish-red; P. latifolia (graveolens, hort.), with rosettes of serrate pubescent leaves bearing rosy-purple flowers; Androsace villosa, white; A. Laggeri, pink; A. ciliata, pink; and A. Chamæjasme, white; several varieties of Primula denticulata, and an Indian species of Primula, unnamed, well furnished with stout peduncles carrying heads of purplish flowers.

Mr. R. Dean, Ranelagh Road, Ealing, showed a small group of Primulas, among which was a very large and partially double flower of an Alpine Auricula named Evolution, the anthers being represented by abortive petals; the colour was of two shades of purple, dark in the centre portion, running off into a paler colour as the margin was approached. There were also in this collection various forms of P. viscosa, P. marginata cœrulea, P. ciliata, P. Polyanthus, Crimson Beauty, Jackanapes, and Cloth of Gold.

Messrs. J. Veitch and Son, Chelsea, had a nice collection, consisting of P. obconica, so useful for blooming almost all the year; the flowers are white, shaded with lilac; P. denticulata var. pulcherrima, with fine round heads of shaded lilac flowers; P. involucrata, a slender grower, with umbels of white flowers, and glaucous foliage; P. rosea, with fine clumps of bright rose-coloured flowers; P. vulgaris, double, in yellow and pink; Polyanthus, Colnbrook Park Beauty, a fine showy regular flower with yellow eye and primrose petals; several other good forms of Polyanthus were included in the exhibit.

Mr. Thomas Walkden, Marsland Road, Sale, Manchester, showed a hybrid Primula with flowers of a pale flesh-colour with a sulphur-coloured eye.

Mr. T. Ware, Tottenham, staged a good collection, comprising P. rosea, P. farinosa, P. floribunda, P. mollis, P. grandis, a strong grower with noble foliage, with yellow flowers on a drooping panicle; P. Sibthorpii, a variety of P. vulgaris, several forms of P. acaulis, as rubra plena, alba plena, lilacina flore pleno, and platypetala; P. suaveolens, a variety of P. officinalis; P. brevistyla, a hybrid between acaulis and officinalis; P. elatior cœrulea, P. denticulata, P. media, a hybrid between P. elatior and P. officinalis; P. cashmiriana, with flowers of violet-purple; P. auriculata, with long strap-shaped leaves, and bright purple flowers; P. Fortunei, P. Peyritschii, P. Arctotis and P. Kerneri. Mr. Ware also exhibited a good miscellaneous collection of spring flowers.

AMATEURS.

J. T. D. Llewelyn, Esq., Penllergare, Swansea, whose exhibit is further alluded to in the Report of the National Auricula Society, and who was awarded the first prize, showed some well-grown clumps in pots of P. japonica, P. Sieboldi, P. obconica, P. verticillata syn. involucrata, P. cashmiriana, P. Auricula from the Swiss Alps, P. cortusoides, P. denticulata, P. erosa, pale mauve, P. rosea, P. viscosa, P. intermedia, P. acaulis rubra plena, &c.

John Poë, Esq., sent some nice cut Polyanthuses from Nenagh, Ireland; and *G. F. Wilson, Esq., Weybridge*, showed Polyanthus hybrids, Scott Wilson and Alice Wilson, together with specimens of P. denticulata.

Dr. R. Hogg showed the Bardfield Oxlip, P. elatior, *Jacquin*, and the common English Oxlip, brevistyla, together with seedling varieties from it.

Dr. August Kanitz, of *the Royal Botanic Gardens, Kolozsvar, Transylvania*, showed a pan of Primula carpatica, with a slender scape of yellow flowers, but robust foliage. This species flowers in the Transylvanian Alps from June till August; but having been grown under glass at Chiswick since March, its flowers were produced in April.

P. J. Worsley, Esq., Rodney Lodge, Clifton, showed P. denticulata, P. hirsuta, from the Upper Engadine; P. carniolica, dwarf and compact, with rosy-purple flowers; P. pubescens, P. nivea, a variety of P. viscosa (with white flowers), P. integrifolia, P. viscosa (from the Upper Engadine), and P. Facchinii.

The Hon. and Rev. J. T. Boscawen, Lamorran, Probus, Cornwall, sent a most charming collection of wild Primroses taken from the open air in woodlands around his house. The tints were chiefly pink and yellow, two colours that blend most harmoniously, but which are rarely seen together, except in Nature's handiwork. The plants were robust and full of bloom.

Miss G. Jekyll, Munstead, Godalming, exhibited a mound of moss dotted over with border Primroses in white, crimson, yellow, and red, that had a pretty effect.

E. G. Loder, Esq., Floore, Weedon, showed a collection of about sixty species and varieties of Primula.

Professor M. Foster showed a flowering plant of the little-known Kaufmannia Semenovii with a spike of pale-greenish yellow pendulous flowers.

MISCELLANEOUS.

Mr. B. S. Williams, Upper Holloway, exhibited a table full of mixed stove plants and Orchids. From Mr. Llewelyn's garden at Penllergare there came some species of Himalayan Rhododendrons, as Thompsoni, Hookeri, ochraceum, arboreum album, Wallichi, campanulatum and ciliatum. The flower masses of these were small, owing to their having grown in the open, but they were compact and uninjured. There were also Narcissi from the same garden.

A capital group of bush and trained standard Roses of well-known kinds was exhibited by Messrs. Paul and Son, Old Nurseries, Cheshunt. A good collection of Narcissi was shown by Messrs. P. Barr and Sons, and Messrs. Pearson and Sons, Chilwell Nursery, Beeston, Nottingham, contributed a stand of zonal Pelargoniums of enormous proportions. Messrs. Cheal and Sons, Crawley, Sussex, showed sixty-five dishes of very well preserved Apples, many of them being quite early kinds.

LIST OF EXHIBITORS.

(Classes V.—XI.)

Boscawen, Hon. and Rev. J. T., Lamorran, Probus, Cornwall—Wild Primroses.

Backhouse and Son, James, The Nurseries, York—Group of Primulas.

Bunyard and Co., G., Old Nurseries, Maidstone—Hose-in-hose Polyanthus.

Douglas, J., Gardener to F. Whitbourn, Esq., Loxford Hall, Ilford—Collection of Auriculas.

Dean, R., Ranelagh Road, Ealing—Group of Primulas.

Elphinstone, W., Gardener to E. M. Mundy, Esq., Shipley Hall, Derby—Double-flowered Primulas.

Francis, A. W., Ravensden, Bedford—One Primula.

Foster, Professor, Shelford, Cambridge—Kauffmannia Semenovii.

Gray, Professor Asa, Primula mistassinica.

Hogg, Dr., F.L.S., 99, St. George's Road, Pimlico—The Bardfield and Common Oxslip, with seedlings.

Jekyll, Miss, Munstead, Godalming—Collection of Border Primroses.

Kanitz, Professor A., Kolozsvar, Hungary—Primula carpatica.

Loder, E. G., Floore, Weedon, Northamptonshire—Group of Primulas.

Llewelyn, J. T. D., Penllergare, Swansea—Group of Primulas.

Maccoun, Professor—Primula mistassinica, dried specimen.

Owen, Miss C. M., Knockmullen, Gorey, Ireland—Green Primrose.

Lee, George, Clevedon—Primula cashmiriana.

Merritt, G., Gardener to Lord Dacre, Kimpton Hoo, Welwyn—Abyssinian Primulas.

Paul and Son, Old Nurseries, Cheshunt—European species, Himalayan and other Asiatic, and plants allied to the genus Primula.

Poë, John, Nenagh—Polyanthus.

Regel, E. Von, St. Petersburgh—Primula algida.

Royal Botanic Gardens, Kew—Group of Primulas.

Royal Botanic Gardens, Edinburgh—Group of Primulas.

Royal Botanic Gardens, Glasnevin—Group of Primulas.

Royal Horticultural Society, Chiswick—Group of Primulas.

Sendtner, Herr, Munich—Collection of Water-colour Drawings.

Sutton and Sons, Reading—Series of Hybrid Primulas.

Veitch and Sons, James, Royal Exotic Nursery, Chelsea—Group of Primulas.

Veitch and Sons, Robert, New North Road, Exeter—Two Varieties of Primula acaulis.

Walkden, T., Marsland Road, Sale—Hybrid Primula.

Ware, T. S., Hale Farm Nurseries, Tottenham—Group of Hardy Primulas.

Wilson, G. F., F.R.S., Heatherbank, Weybridge Heath—Seedlings of Primrose "Scott Wilson," cut flowers, and Primula denticulata from open border to show growth.

Worsley, P. J., Rodney Lodge, Clifton, Bristol—Species of Primula.

AWARDS.

(*See also page* 180.)

In addition to the Prizes specified in the Schedule, First Class Certificates were awarded to—

Primula mistassinica, from Professor Asa Gray, through Messrs. J. Veitch and Sons.

Primula denticulata erosoides, from Messrs. J. Veitch and Sons.

Primula denticulata erosoides, from Royal Gardens, Kew.

Primula Sp. No. 2 (Himalayas), from Royal Botanic Gardens, Edinburgh.

Primula Sp. No. 1 }
Primula Sp. No. 4 } (Seedlings of P. viscosa), from Mr. Calder, Edinburgh.

Primula hybrid (between P. Auricula and Auricula "Petronella"), unnamed, from J. T. D. Llewelyn, Esq.

Primula rosea seedling var., from J. T. D. Llewelyn, Esq.

NATIONAL AURICULA SOCIETY (SOUTHERN SECTION).

(Classes I.—IV.)

A series of prizes was offered by this Society, but owing to the exceptionally cold weather during the three first months in the year there were not so many exhibitors from the North of England as usual. Out of a total of seventeen prizetakers, three only exhibited Auriculas from the north of the Trent, viz., Mr. Potts, of Hoole Hall, Chester, Mr. W. Bolton, of Warrington, and Mr. Walkden, of Sale, near Manchester. The type of Primula Auricula, classed as show Auriculas, are not delicate in constitution as plants. Frosts would not injure them if they are kept dry at the roots, but the flowers are very delicate, and if they are caught by a frost during the period of expansion they do not open out, but become what the fanciers term "set," and in this state their delicate markings are not shown to the best advantage. To minimize the danger of the flowers being injured by frost, the owners of valuable plants place them in heated houses in January; but the heating apparatus must not be used, except to keep out frost. This was done with our collection at Great Gearies, in Essex, and the plants were just in good flower for the Exhibition. In ordinary seasons with the same amount of artificial heat they would have been in flower much earlier. The Rev. F. D. Horner, who is the owner of the most valuable collection of seedling varieties in the United Kingdom, has his garden at Burton-in-Lonsdale, Yorkshire, and has his collection usually in flower at the time of the Southern Exhibition; but owing to absence from home for a period of three weeks before the Exhibition, the plants did not receive that amount of artificial heat needful to force them into flower, and when Mr. Horner was able to attend to them, about ten days previous to the Exhibition, he was unable to get them up to time, and missed by five days only. The absence of this famous collection was a great loss to the Exhibition.

The AURICULA SOCIETY provided one hundred and sixteen prizes for competition, which were divided amongst all classes of fanciers. The owners of small collections do not compete against those who have larger resources, unless they wish to do so, and they sometimes do so when they think they are likely to be successful.

It was generally thought that the quality of the plants was not above the average, but my own experience (and I have attended all the Exhibitions ever held by the Society) was that they were fully up to it. The collection of twelve show varieties which gained the first prize contained some very good specimens, notably the grey-edged George Lightbody, which was awarded the first prize as the best Auricula in the Exhibition. The white-edged Smiling Beauty (Heap) was also very fine.

Special mention should also be made of the plants exhibited by Mr. Henwood and Mr. Phillips, of Reading. These exhibitors attend to their plants in their spare evening and morning hours, and grow them remarkably well. A plant of Ellen Lancaster (Pohlman), exhibited by Mr. Phillips, a dark self Auricula, was the finest of that variety ever exhibited in the South.

The ALPINE section of AURICULAS was well represented. Mr. Turner, of the Royal Nurseries, Slough, has always held the leading position for these plants, and he retained it on this occasion. Many persons greatly prefer the Alpines: they are much more hardy in their constitution, and the colours of some of them are of the most brilliant description. They are as regards hardiness fitted for out-of-doors culture, and are well adapted for certain positions in the rock garden. In Mr. Turner's collection, some seedlings, exhibited for the first time, attracted considerable attention, notably the variety named Charles Turner, very distinct and beautiful: it had the usual rich yellow centre, and a dark edge shading off to cerise. Another good seedling Alpine named Sceptre had also a fine golden centre and shaded edge. Another class of Auricula which has recently attracted some attention is that comprising the so-called fancy varieties. The show Auriculas have green, grey, white or self edges, and in the case of the green, grey and white-edged varieties there is also a dark zone of maroon or some other rich colour; but the fancies had the peculiar edge of the show varieties, and the zone of maroon was substituted by one of yellow, the flowers reverting in fact to their primitive colour, yellow with a white centre. The above were represented by a collection from Mr. Douglas and one from Mr. Bolton.

The old-fashioned type of what is now termed LACED POLYANTHUSES was represented by growers from Manchester, London, and Wales. The quality of the flowers was not so good as usual owing to the absence of one or two Northern growers of note, their flowers not being sufficiently advanced.

The more modern type of Polyanthus and the varieties of the common Primrose were well represented by Mr. Dean, of Ealing. This exhibitor has long been famous for his Primroses, and on this occasion they lacked nothing in fine form and brilliant colours, some of the Primroses, such as Ellen Terry, of a charming rosy-pink colour, being much admired.

The prizes offered by the Society for species of PRIMULA brought out three competitors. Mr. Llewelyn, of Penllergare, Swansea, exhibited by far the best collection; one plant of P. rosea exhibited by him was one of the greatest attractions to visitors.

An interesting feature of the Auricula Exhibitions is constituted by the new seedlings exhibited for the first time. This year they were not so numerous as usual.

The only noteworthy example, in the green-edged class was a specimen of Abbé Liszt (Douglas); the plant was not of large size, but the truss of flowers was very neat, and the pips of considerable refinement. There was nothing very remarkable in the grey-edged class, but in the white-edge a first prize was awarded to Snowdon's Knight (Douglas); the flowers of this variety had one fault, they were not so flat as they should be, but the plants and truss were of full size, the edge of the flowers very pure white, and the centre tube a clear yellow.

In the self-edged class, the first prize was awarded to Mrs. W. H. Rawson (Bolton), a dark self, very smooth and flat, with a lemon-coloured tube and white circular paste. The second award was given to Mrs. Wilson (Bolton), a bluish self with a very well-formed flower, the paste circular, pure white, and lemon-coloured tube.

Mr. H. A. Rolt, of Wimbledon, exhibited a green-edged Auricula with a red ground; quite a novel flower.

As a further proof that the Exhibition was quite up to the Northern standard, a plant of John Simonite, white-edged Auricula, which was exhibited in London, was carried home to Chester, and seven days after gained "premium" as the best Auricula of any kind at the Manchester Exhibition. This was also a further proof of the enduring nature of the flowers, which are supposed to be fugacious in their character.

Chinese Primroses were poorly represented, but Mr. Alphinstone, of The Gardens, Shipley Hall, Derby, exhibited four very fine double white forms, each plant about 20 inches across, and well grown.

Awards.

The following is the List of Awards, with the most noticeable features of each exhibit:—

Auriculas.

Class A.—Twelve Auriculas.—Five prizes offered.—There were two competitors only, the first prize being awarded to Mr. Jas. Douglas, gardener to Francis Whitbourn, Esq., of Great Gearies, Ilford; the second to Mr. Chas. Turner, of the Royal Nurseries, Slough; the most prominent varieties in both collections being Verdure (Douglas), a very pure green edge, but rather rough as shown; Prince of Greens (Trail); Colonel Taylor (Leigh), still a good old green edge, was highly esteemed fifty years ago; The Rev. F. D. Horner (Simonite), one of the best recent green-edged varieties. George Lightbody (Headly), the best of all show Auriculas; Mabel (Douglas), a good new grey-edged variety; Prince Henry (Turner), a new green-edged kind, edge rather narrow; Conservative (Douglas), a new white-edged kind of great refinement; Acme (Read), a superb white edge, and easily grown; Duke of Albany (Douglas), the darkest new self edge; and Pizarro (Campbell), the best of the old selfs.

Class B.—Six Auriculas.—Five prizes offered.—In this class there were four competitors, Mr. J. Douglas was first; Mr. Chas. Turner, second; John T. D. Llewelyn, Esq., of Penllergare, third; Mr. G. W. Hardwidge, of 1, Martineau Road, Highbury

Hill, fourth; the best varieties exhibited being Prince of Greens (Trail), Abbé Liszt (Douglas), a new green-edged variety shown for the first time, George Lightbody (Headley), Mabel (Douglas), Smiling Beauty (Heap), a very splendid white-edged variety; Duke of Albany (Douglas) and Lord of Lorne (Campbell) were the selfs.

Class C.—Four Auriculas.—Five prizes offered.—There were nine competitors. The first prize was won by Mr. T. E. Henwood, of Earley, near Reading. Second, Mr. C. Phillips, Earley, Reading. Third, Arthur Potts, Esq., Hoole Hall, Chester. Fourth, Mr. W. L. Walker, Reading. Fifth, Mr. A. J. Sanders, gardener to Viscountess Chewton, Bookham, Surrey. The plants shown in this class were of excellent quality. Lancashire Hero (Lancashire) was in fine form, George Lightbody (Headley), Conservative (Douglas), Sapphire (Horner), and Ellen Lancaster (Pohlman), the last-named was never shown better in London.

Class D.—Two Auriculas.—Five prizes offered.—There were ten competitors—A. Potts, Esq., was first; Mr. C. Phillips, second; third, Mr. H. A. Rolt, 170, Hartfield Road, New Wimbledon; fourth, Mr. C. Orchard, gardener to J. Glasworthy, Esq., Kingston-on-Thames; fifth, Mr. Walker. One variety exhibited in this class by Mr. Potts, named "New Green," was very pretty, and the white-edged Acme was a good companion to it. C. J. Perry (Turner), a violet-coloured self-edged variety, was very pretty. Lancashire Hero, George Lightbody, and the old Sykes complete, was also well shown.

Class E.—Green-edged Auriculas; one plant.—Seven prizes offered.—This and the next three classes were open to all competitors, consequently the entries were very numerous. Sixteen exhibitors competed for the prizes. In E, Mr. Turner was first and second with George Lightbody (Headley) and Lancashire Hero (Lancashire), Mr. Douglas third and fourth with Prince of Greens (Trail), Mr. Henwood fifth with Colonel Taylor (Leigh).

Class F.—Grey-edged Auriculas; one plant.—First and fourth, Mr. C. Turner, with George Lightbody and Richard

Headley (Lightbody); second and third, Mr. Douglas, with George Lightbody; fifth, Mr. Walker, with Richard Headley (Lightbody); sixth, John T. D. Llewelyn, Esq., with Grey Friar; seventh, Mr. C. Phillips, with George Lightbody.

Class G.—White-edged Auriculas; one plant.—First, Arthur Potts, Esq., with John Simonite (Walker), a charming plant, which gained "premium" as being the best Auricula exhibited at the Northern Sections Exhibition at Manchester seven days after; second, Mr. Douglas, with Acme, and third with Conservative; fourth and sixth, Mr. C. Turner, with Acme and True Briton; fifth, A. Potts, Esq., with Beauty (Trail); seventh, Mr. Henwood, with Acme.

Class H.—Self-edged Auriculas.—First and fifth, W. Bolton, Esq., with Black Bess and a Seedling; second, Mr. Henwood, with Pizarro; third and sixth, Mr. Turner, with Pizarro and Lord Lorne; fourth, Mr. Sanders, with Topsy; seventh, A. Potts, Esq., with Lord Lorne (Campbell). This is a very showy reddish-crimson self-edged Auricula.

Class I.—Fifty Auriculas.—Four prizes were offered, but there were only two competitors. Mr. Douglas gained the first prize, and Mr. C. Turner the second. The best varieties selected from both collections were green-edged Prince of Greens (Trail), Lycurgus (Smith), Admiral Napier (Campbell), grey-edged Lancashire Hero, George Lightbody, Mrs. Moore (Douglas), Ajax (Horner), Marmion (Douglas), Colonel Champneys (Turner), Mabel (Douglas), Confidence (Campbell), Squire Chilman (Wilmer), Charles E. Brown (Lightbody), white-edged Dr. Kidd (Douglas), Beauty (Trail), Silvia (Douglas), Conservative (Douglas), Reliance (Mellor), True Briton (Hepworth), John Waterston (Cunningham), self-edged Sapphire (Horner), Garibaldi (Pohlman), Duke of Albany (Douglas), C. J. Perry (Turner), Lord of Lorne (Campbell), Eliza (Sims), Mrs. Smith (Smith), Petronella (Headley), Vulcan (Sims), Topsy (Kay), Bessie Bell (Spalding), Sultan (Turner).

Alpine Auriculas.

This class of Auriculas is very much admired, and for border culture, or planting in the rock garden, they are of great value. When it is intended to exhibit them, they are grown in pots and placed under glass to keep the flowers clean. To Mr. John Ball, one of the foremen in the Royal Nurseries, Slough, belongs the credit of bringing the Alpine Auricula through its various stages of improvement up to the high state of perfection it has now attained. Thirty-five years ago he commenced with two varieties, Brilliant and Conspicua. He was then in the service of the late Mr. Charles Turner, and he is now in the firm trading under that name at Slough.

Class K.—Twelve Alpines.—Four prizes were offered, but only two exhibitors presented their plants. First, Mr. C. Turner; second, Mr. J. Douglas. To save repetition, I would remark that all the varieties named below, with the raiser's name left out, were raised by Mr. Turner. The best varieties were Charles Turner, Sceptre, Mrs. Thomson, Sensation, Unique, Sir H. Darvill, Athlete, J. T. Poë, J. J. Colman, Edith, Princess of Wales, Miss Mollie (Douglas), Rosamond Fellowes (Douglas), Diadem (Gordon), Lady Howard de Walden (Douglas), Princess of Waldeck (Douglas).

Class L.—Six Alpines.—Five prizes and five competitors. First, Mr. C. Turner; second, Mr. J. Douglas; third, Mr. R. Dean, Ealing; fourth, Mr. C. Orchard; fifth, Mr. A. Spurling, The Nest, Blackheath; the best varieties being Mrs. Ball, Progress, Mrs. Pope, Paragon, Love Bird (Douglas), Unique, &c.

Class M.—One Alpine, with gold centre.—Six prizes.—First and fifth, Mr. Turner, with Pantaloon and John Bull; second and third, Mr. Douglas, with Rosamond Fellowes (Douglas); fourth, Mr. R. Dean, with Mrs. Thomson.

Class N.—One Alpine, with white centre.—Six prizes.—First and third, Mr. Turner, with Columbine and Miss Taplin; second, Mr. R. Dean, with Tenniel; fourth and fifth, Mr. Douglas, with Lady Howard de Walden (Douglas).

Polyanthus.

Class O.—Six Polyanthuses, gold-laced.—Four prizes.—The only competitors in this class were Mr. Douglas, who gained the first prize with William IV. (Sanderson), Prince Regent (Cox), George IV. (Buck), John Bright (Barlow), Henry I. (Sanderson), Lancashire Hero; and Messrs. Paul and Sons, The Old Nurseries, Cheshunt, Herts, but their plants were pin-eyed, which is a disqualification.

Class P.—Three Polyanthuses, gold-laced.—Four prizes and four competitors. First, Mr. T. Walkden, Sale; second, Mr. Douglas; third, Mr. Dean; fourth, J. T. D. Llewelyn. Cheshire Favourite, Prince Regent, John Bright and Exile were the best varieties.

Class Q.—Single specimen gold-laced Polyanthus.—Six prizes.—First and second, Mr. Walkden, with Cheshire Favourite; third, Mr. Dean, with George IV.; fourth and fifth, Mr. Douglas, with Prince Regent and Lancer (Bullock).

Class R.—Twelve fancy Auriculas.—Three prizes.—Mr. Douglas was first, and Mr. Bolton second. The fancy Auriculas are varieties that cannot be admitted into other classes, some of the varieties being distinct and very pretty.

Class S.—Twelve fancy Polyanthuses.—Three prizes.—Two competitors. First, Mr. R. Dean, with a very choice selection, comprising Sulphur Gem, Conqueror, The Bride, Yellow Bedder, Chancellor, Cloth of Gold, Crimson Gem and seedlings. Messrs. Paul and Sons were second.

Primroses.

Class T.—Primroses, double or single.—Three Prizes.—Two competitors. First, Mr. Dean, with Royal Purple, Clarissa, Ellen Terry, Fire Queen, The Mikado, White Queen, Salvator, Ethel, Double White, and three seedlings. Messrs. Paul were second.

Class U.—Twelve Primulas.—Three prizes.—Three competitors. J. T. D. Llewelyn, Esq., easily gained first and second prizes in this class. He exhibited the best grown examples ever seen at South Kensington. Primula rosea, exceptionally fine as a plant and variety; P. obconica, a splendid plant with twenty fine trusses; P. erosa, pretty; P. viscosa nivea; P. japonica, a handsome plant; P. viscosa, P. cortusoides, P. denticulata, P. Sieboldi, and P. verticillata. Mr. J. Douglas was third, and an exhibit of interesting species came from Messrs. Paul.

MISCELLANEOUS.

CLASS V.—Premier Auricula.—Mr. Douglas, for George Lightbody.

Two prizes for Seedling Auriculas, green-edged.—No competition.

Two prizes for grey-edged.—Second prize, J. T. D. Llewelyn, Esq., for C. Warmington.

Two prizes in white-edged.—First, Mr. J. Douglas, for Snowdon's Knight.

Two prizes for Selfs.—Both first and second awarded to Mr. Bolton.

Two prizes for Alpines, gold centres.—First, Mr. Turner with Sunrise, and second with Athlete.

Two prizes for Alpines, white or cream centres.—First, Mr. Turner, with Marguerite.

The prizes offered for Laced Polyanthuses did not bring any competition.

The judges were Messrs. W. Bolton, Shirley Hibberd, H. Polhman and John Laing.

JAS. DOUGLAS.

THE CONFERENCE.

This meeting was held on Wednesday, April 21st, 1886, in one of the crush rooms of the Royal Albert Hall, adjoining the Conservatory. J. T. D. Llewelyn, Esq., presided. Dr. Masters acted as Secretary, and the numerous auditory comprised a large number of gentlemen and ladies interested in the culture of the various species of Primula.

The Chairman, said: I will introduce the business of the meeting by first of all referring to the pleasure we experience in having such a capital show, and by expressing my conviction that the public, who came here to see the florists' flowers, as well as the wild species we have been able to bring together, appreciate, not only the beauty of the exhibition, but the scientific part of it as well. You must have observed how some lovers of flowers devote their attention to the florist sections, while others take up the wild originals ; but there is ample room for us all, florists or botanists, to admire what we like. Many people have been first of all attracted to the study of flowers by seeing to what a degree of beauty and development they can be brought by the art of the florist. This leads them to examine the wild originals from which these developments have come.

On the other hand, there are the botanists who have seen the originals growing in their native habitats, and who have seen what nature does in the way of hybridizing these plants and in the production of forms which are intensified in beauty. In either case I can say there is ample room for all classes of flower-lovers, both for the florist and for the botanist. I am one of those who think we have a great future before us, and that we may yet develop forms of beautiful primroses from the Himalayan Alps, and elsewhere, and which may furnish the florist flowers of the future. I do not in the least think that we have yet arrived at finality in our standard of beauty. Further progress may be made by a little careful work and observation on the part of hybridizers and gardeners. I think that by means of these Conferences, in which we meet together and compare notes, we shall arrive at the best way of producing different varieties and making the improvements that I have hinted at.

Some of the papers that are going to be read are directly concerned with the hybridization of flowers, and their improvement by cross-breeding, and this leads me to say how sorry I am that Mr. Horner is not here to read his own paper. This is, I think, the first time for several years that he has missed our Auricula Show, and I am sorry to hear that through the death of a relative he is compelled to be absent. I am sure, however, that he is with us in spirit, and that he will feel it a great disappointment that he is unable to be present. With regard to the other papers that are to be presented to you, we have the writers here, and I look forward with great pleasure to their reading their papers; or, if they prefer it, giving us the gist of their papers. Proof copies of the papers have been placed in the hands of several, but not of all of you; therefore, I for one shall certainly protest against any of them being "taken as read" unless the writers place before the Conference orally the salient points of their papers, and then allow the discussion to take place upon that introduction. If they do not do that, certainly I should then prefer that the papers should be read in full, because they will be found to be of very great value and interest.

Before I sit down may I say one word with regard to these Conferences in general? It has been a very great pleasure to most of us to attend them. Take the Narcissus Conference, a couple of years ago. I suspect that everyone who attended that Conference left with a pleasurable recollection of what took place; I fancy everybody must have learned something from it, and even if they learned nothing, the public had the opportunity of seeing a very pretty exhibition. I hope that in our turn, we shall go away from this meeting having learned something more than we knew before, and with the hope of spreading our information amongst our friends who have not the privilege of coming to these Conferences. I trust that we shall carry our observations into practical experience after we get home, in improving on the many forms that are now shown. I think, myself, you have only to go amongst the Narcissi shown here to-day as accessories to the Primroses, to see that there has been a development of those flowers since and as a direct consequence of the Narcissus Conference. I think we may reasonably look forward to a similar result from this Conference on the Primula. Therefore, I consider that these meetings are of very great value, and I for one shall hope to see them continued in the future, and whenever an opportunity occurs I shall be glad to give my vote in favour of the continuance of the Conferences.

I now call on the Secretary to read some letters which I think he has to read, and then we will go on with the business of the meeting.

Dr. MASTERS (Secretary): I have a letter from the Hon. and Rev. J. T. BOSCAWEN, who regrets that he is not able to be present, but who has sent us a very splendid collection of varieties of the coloured Primrose, found wild in Cornwall.

Then there are other matters to be laid before the Conference that deserve notice. First and foremost I should place the List of all the Species and Varieties of Primula, drawn up by Mr. DEWAR, of the Royal Gardens, Kew. (*See* Appendix, p. 275.)

Mr. STEIN, the Director of the Botanic Gardens at Breslau, has sent, for distribution, a similar list, not so complete as Mr. Dewar's, being devoted to the European species only, which are cultivated in the Breslau and other Botanic Gardens of Germany. These, also, have been distributed, as far as their numbers permitted. (For abstract of Mr. Stein's list *see* Appendix, p. 268.)

A very valuable collection of seeds of Himalayan Primroses, from the Calcutta Botanic Garden, has been sent by Dr. KING and others from Dr. DUTHIE, of Saharunpore, and Dr. WATT. These came previous to the meeting, and have been distributed amongst the leading Primula growers, as far as their numbers permitted, as these seeds comprise many species hitherto unknown in English gardens.

There is a very beautiful collection of accurate water-colour drawings, sent by Mr. SENDTNER, of Munich. Some of these are, through the courtesy of the Director of the Royal Gardens, Kew, exhibited in frames, and represent an extremely interesting series of our European Primroses. Many of them are the more interesting because they are taken from plants collected by the artist himself and cultivated in his own garden.

M. FRANCHET sends a short communication of considerable interest to botanists, as to the native country of the Chinese Primrose. Till lately, we have had no more than hearsay evidence that it grew wild in China. M. Franchet now tells us that the

Abbé Delavay has collected and sent home specimens of the Chinese Primrose. They were found on calcareous rock, on the borders of the Blue River, in the gorges of Y-Tchang, in the Province of Ho-Pé.

We have also received an interesting note from the DIRECTOR of the HONG KONG BOTANIC GARDENS with reference to the culture of this same Primula sinensis in China. "We manage to grow the cultivated variety of P. sinensis in Hong-Kong during the cold season, but they invariably damp off when the hot weather sets in. They have not even time to mature their seed. We have therefore to get a fresh supply from England every autumn."

From Canada we have received a number of dried specimens of P. mistassinica from Lake Mistassini and other localities in Canada. It is a little plant very nearly allied to our farinosa. Among the specimens Professor MACCOUN has sent there are some that seem intermediate between the two. A living specimen of the same species has been sent by Dr. ASA GRAY through Messrs. Veitch.

Dr. VON REGEL, of the St. Petersburg Gardens, has sent through Messrs. Veitch a living plant of Primula algida, and has also sent at the same time a series of dried specimens from Western Turkestan. [Subsequently presented to the Kew herbarium.—ED.]

Professor WILLKOMM, of Prague, regrets exceedingly that he is unable to be present, but is desirous of calling attention to two species figured by him in his "Illustrationes Floræ Hispaniæ." Primula vulgaris var. balearica, tab. 35, has pure white flowers and leaves tapering into an unusually narrow stalk, and which Professor Willkomm now considers to be specifically distinct from the common Primrose. The second plant to which he calls attention is Cyclamen balearicum, from the Balearic Islands, tab. 5, and which looks very different from any ordinary Cyclamen.

Professor KANITZ, of Kolozsvar, Transilvania, has sent flowering specimens of Primula carpatica.

The CHAIRMAN: The third item on the Agenda is that the Chairman should propose a vote of thanks to the various botanists who have contributed specimens, and in other ways contributed to the success of this meeting. I have the greatest possible pleasure in proposing that, and I feel sure you will carry it by acclamation. It has been of great assistance to us to have had the co-operation of foreign botanists, although, I am afraid, but few living plants from abroad have been received, but we could not expect more in such a season as this. We have, however, what is very valuable to us, and that is a quantity of seed of various species. As far as my experience shows, there is but one of that batch of seed alluded to by the Secretary that we have not been able to cause to germinate, and that is *Primula Elwesiana*. If this Conference had been held this time next year perhaps we might then have a great many new things to show out of that batch of seed; I merely mention its receipt now as one of the practical results from which we may hope much interest in future. I have the greatest pleasure in proposing a vote of thanks to the several foreign and colonial botanists who have contributed in any way to the success of our Conference.

Professor MICHAEL FOSTER: I suppose, coming from the chair, the motion hardly needs seconding, but I imagine that the Secretary to the Conference will send up the resolution to the Council, in order that it may be transmitted to the foreign botanists in a formal manner.

The resolution was agreed to [and formal votes of thanks were subsequently sent.—ED.].

The CHAIRMAN: I now call on Mr. Shirley Hibberd to read his paper on the "History of the Auricula."

Mr. SHIRLEY HIBBERD, before entering upon the subject of his Paper, laid before the Conference, on behalf of Mr. Dewar, an interesting series of drawings and tracings of various species of Primula, forming a valuable collection of illustrated memoranda concerning these plants. This duty discharged, Mr. Hibberd proceeded to give orally the substance of his paper, the full text of which is subjoined:—

ON THE ORIGIN AND HISTORY OF THE FLORISTS' AURICULA.

By SHIRLEY HIBBERD, Esq., F.R.H.S.

In treating the origin and history of the Florists' Auricula, in the interest of the Primula Congress, it is a matter of plain propriety to remark that I discoursed on the same subject in this place on the 25th of April, 1882, and the text of my thesis was published in the horticultural papers. With the present important task before me, I have again reviewed the history of the flower that takes highest floral rank amongst the Primulas, and shall endeavour to submit to your consideration matters that are possibly of importance, and that, I hope, will at least prove interesting. It will be convenient to dispose of established truths in the first instance in order to obtain a proper basis for speculations on things unknown. The origin of the Auricula we will, for the present, assume to be unknown, but we have at command much of a trustworthy character in relation to its history during the past 300 years, and it will be a safe, even if a dull procedure, to rummage the books and set forth a few of the more promising facts and figures before tackling the portentous question of the origin of the flower.

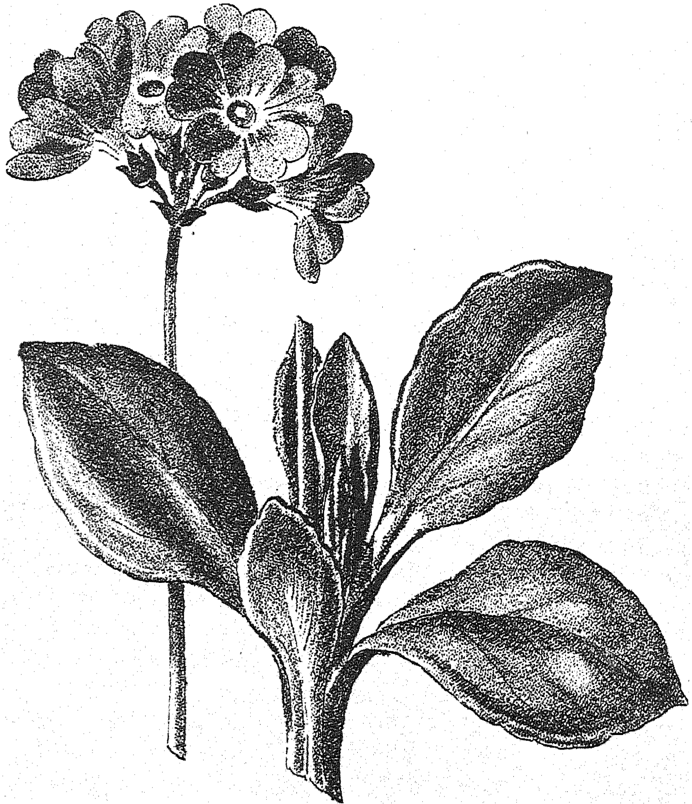

Fig. 1.—CARNIOLIAN PRIMULA, *Primula carniolica* (Flowers purple or violet).

A direct hint as to what to avoid as well as what to attempt may be derived from the reference to the Auricula in Beckmann's "History of Inventions." He quotes from Weismantel's "Des Blumisten" to the effect that Ovid, Pliny, and Columella knew the flower. Well, those writers were also acquainted with garlic, barley, and figs; but we pay no attention to them until they offer some special information illustrative of the arts, customs, or necessities of the times in which they lived. It is somewhat to the purpose, perhaps, that Pluche, in "Spectacle de la Nature" (ii. 49), states that the Auricula was carried from Switzerland to Brussels by Walloon merchants. The second volume of this work was published in 1733, and it gives no clue to the date of the carrying. But the statement is of importance in connection with the general belief that the Auricula was cultivated in the Netherlands long before it was introduced into this country; and that the garden varieties of the flower were introduced by refugees from the Low Countries about the year 1570. We find mention of the flower in the works of Fuchsius, Matthiolus, Clusius, Turner, and Dodoens. But the sixteenth century botanists were but little better informed on the subject than the writers of the later Roman period; and it would be waste of time to attempt to formulate their scraps of information. Matthiolus figures the true Auricula admirably at page 706 of "De Plantis Epitome" (1586). In the superb edition of Dodoens, printed at Antwerp by Plantin, it is very badly figured at page 148. By both it is described as Auricula ursi, and by this name of bear's ears it was generally known amongst the sixteenth-century botanists and gardeners. But the "Florists' Auricula" was by them unknown, for it came into existence after their time.

In the year 1570 many artizans, driven out from the Netherlands, settled in this country, and they brought their favourite flowers with them, including the best of their Auriculas. We begin business at the old shop, for Gerarde, who published his "Herbal" in 1597, described and figured half-a-dozen varieties. On page 640 the contrast between the yellow and the purple beares ears, although shown in drawings that are truly execrable, is full of instruction in respect of the question before us. The other figures are of little consequence, but the two that lead the way speak emphatically of the distinction between the true

Auricula and the flower known to us as the Alpine Auricula. In plain truth they were as distinct then as they are now, and John Gerarde's bad drawings hit the truth admirably. It is important also to note the remark of Johnson in his edition of Gerarde, published 1633, to the effect that there are divers varieties, differing in the leaves, which are green or hoary, and in the flowers, which are white, yellow, red, and purple; the gardens of Mr. Tradescant and Mr. Tuggie being well furnished with such.

These things prepare us for what the immortal John Parkinson has to say. In his "Theater of Plants" (1640) he copies the bad figure from the Antwerp Dodoens, and describes twenty-six kinds of Auriculas. It is of the highest interest to note that amongst them occur a "stript purple," which he describes as singularly changeable; also a parti-coloured red and white, "heard of but not seen." The Collie, that he describes as "somewhat sad but very lively," and the "Purplish Blew," appear both to have been of the class known to us as selfs, while "Heavens Blew," "Paler Blew," and "Bright Crimson," were of the class now known as Alpines. Of yellows he says there were many, but so mixed "I cannot expresse them." This is just what might be expected, and it may be fair to add that, as a matter of course, they were the least valued, because not far enough removed from the wild flower of the mountains, for the opinion appears to have prevailed that there was only one kind of wild Auricula.

In the "Paradisus" there are twenty varieties described, a few of which are admirably figured. Of these nine had green leaves without meal, and the remainder were more or less mealy. The flowers are presented as varying in colour, and some have a centre of the kind we call "paste," while others are without it. The colours are just such as we find in border Auriculas of the present day, comprising shades of red, purple, violet, marone, yellow, and white. We are certainly in the midst of Auriculas, not only of the mountain, but also of the garden. It appears that we have in the "Paradisus," inexhaustible treasure as it is, the fountain of diversity as revealed to the penetrating eye of "Thine in what he may," the author of what he himself in his dedication designates "this speaking Garden."

This paper should be something like a catalogue of evidences, and I invite your attention to the description of "the great straw-coloured Beares eare," at page 238 of the book last mentioned. "This hath almost as mealy leaves as the last, but nothing so large; the flowers are of a faire strawe colour, with a white circle at the bottom of them." These three last (that is the great yellow, greater yellow, and great straw) "haue no shew or shadow of any other colour in any part of the edge, as some others that follow haue."

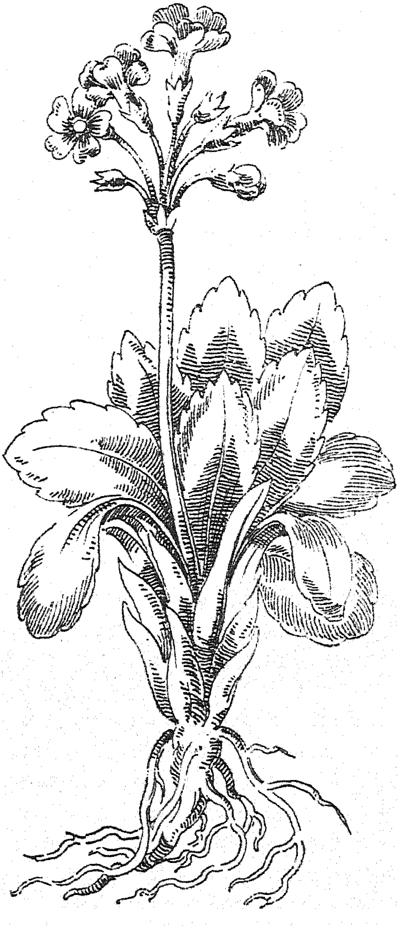

Fig. 2.—**AURICULA URSI**, after Matthioli, Epitome, 706.

The "blush Beares eare," the "Haire-coloured Beares eare," and the "yellow variable Beares eare," are described as edged flowers. For example, "the Blush has a ground colour of a dark or dunne-yellow, shadowed ouer a little with a shew of light purple, which, therefore, we call a blush colour, the edges of the flower being tipped with a little deeper shew of that purple colour, the bottome of the flower abiding wholly yellow, without any circle, and is of very great beauty." The Hair-coloured is of a brownish yellow, edged with a show or shadow of a light purple colour. The Yellow variable is of a fair yellow, "dasht about the edges onely with purple, being more yellow in the bottome of the flower then in any other part." I seem to hear our friends the florists say that these were flowers with shaded edges, of which we have many at the present day. Yes, the history of the flower is before us, and the "Paradisus" appears to provide us with the very first record of that kind of edging. Parkinson reserved a *bonne bouche* for a wind-up of his feast of Auriculas. It is the "Variable green Beares eare." This hath green leaves snipt about the edges; the flowers are yellowish green, having purple edges; these have no circles at all in them. This variable green with a purple edge might, for present purposes, be assigned the position of a pole star in the floral firmament; at all events, I, for one, feel attracted to it, and expect it to afford assistance in tracing out the order of the stars in the two constellations of Ursa major and Ursa minor that "in earth's firmament do shine;" for these stars seem to be now coming home to us.

There is no special interest for the present occasion in the progress of the Auricula, in what appears to have been its early conditions as regards range of colour and variation of leafage. It is only when it assumes what, for convenience sake, may be termed its exhibition character, that it becomes more than ordinarily attractive, not only for the delight of the eye, but as a subject for scientific study. Let us then consider the position of the edged flowers in the history. The one presented us by Parkinson is very different to the florists' Auricula of the present day; but it is probably a true Auricula, for the leaves "do turne and fold themselves a little backwards," the flowers are less expanded than some others, but alas! they have no circles in them, and the variety is not figured. This, we will say, is the most remarkable of all cultivated flowers, a small wonder, but a true one; a great achievement of art or a most extravagant freak of nature. When did the first properly-edged flowers appear?

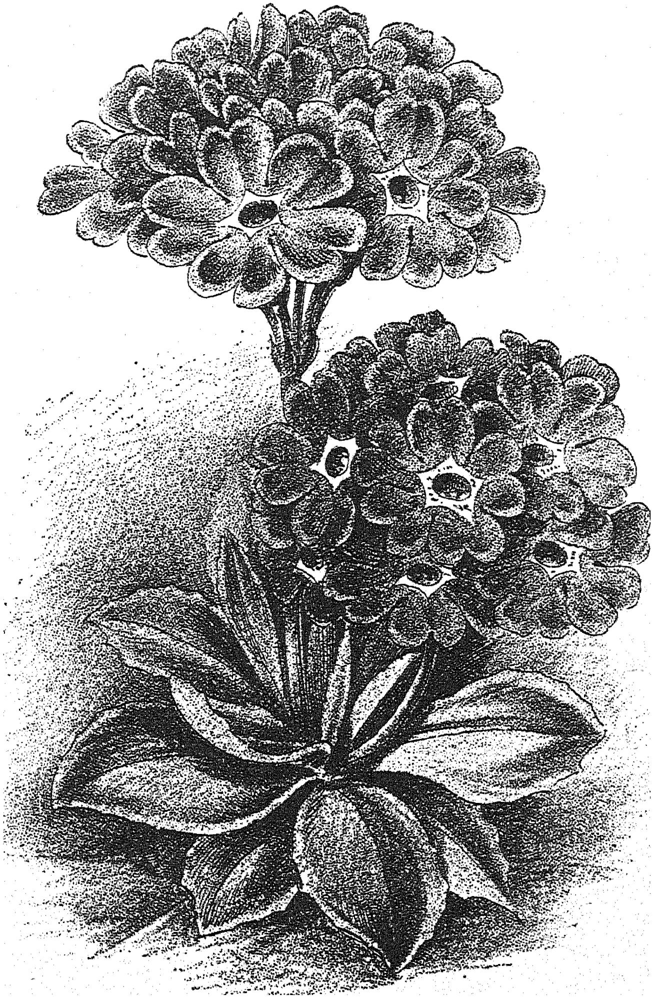

Fig. 3.—PIEDMONT PRIMROSE, *Primula pedemontana* (Flowers rosy purple).

That question is now forced upon us, and is full of significance, even if judged by this first record of a green flower with a purple edge. A very trifling change would give us a purple flower with a green edge, and changes of that kind are common enough.

Strange to say, edged flowers were not received with open arms by the faculty. They had to win their way slowly to the favour of the florists, and on the principle that the world knows not its greatest men, the gardening world in general was for a long time ignorant of this unique production ; this most precious of all the jewels in the diadem of Queen Flora. The proof of this will furnish matter for a paragraph.

In Miller's Dictionary, first published 1731, the edged flowers obtained no recognition, but Miller provided a good code of judging Auriculas, *minus*, of course, certain points that are of peculiar importance now. The fact proves that the flower had acquired extensive popularity, and inspired some kind of corporation that for present purposes may be designated the Auricula Fancy. Even in 1676, fifty years after Parkinson had so nearly witnessed the making of the florists' Auricula, John Rea, in his "Florilege," described striped flowers, and advised the selection of flowers "with white eyes that will not wash."

The subject obtains scientific treatment in Hill's "British Herbal" (1756), and the author, John Hill, M.D., boldly declares that many of the so-called species of authors "are no other than varieties of this plant rising from culture." At page 98 he speaks of the yellow Auricula as standing alone, and apart from those that produce red and purple flowers. Of these last he says there are three species not directly related to the yellow Auricula, and these he describes as narrow-leaved, round-leaved, and long-leaved. To one of the descriptions he adds the remark that "there is no judging by what one sees in gardens, where the accidents occasioning varieties are endless; but in those collected wild there is no error."

In Hill's "Eden," by the same John Hill, published 1757, Auriculas are fairly treated of, but edged flowers are not mentioned. Hanbury's "Body of Gardening," 1770, gives a hint in the way of our search in speaking of variegated Auriculas. It is a question of some importance whether the variegated flower of Hanbury was the striped flower of Parkinson, or a modification of that edged flower that had been noted as a curiosity a hundred and fifty years before. There is clear evidence in the "Florist" of 1849, that in the year 1732 the edged flowers were not generally recognized; but in a code of rules for judging Auriculas, "flakes' and "stripes" are mentioned as important adornments of the flowers that were in favour in 1732. Mr. Slater, in his "Amateur Florists' Guide," gives a list of proper edged flowers that were in cultivation in 1776, and in my paper, read here in 1882, I assumed —I still think properly—that some of these were in existence in 1750 or earlier. The varieties known as Potts's Eclipse, Rule Arbiter, and Hortaine were in cultivation in 1757. About 1785 the edged varieties were plentiful, and amongst them were Grimes's Privateer, Popplewell's Conqueror, Gorton's Champion, and Wrigley's Northern Hero, which are still in cultivation, not as archæological curiosities, but because they are good, and have retained their initial vigour as cultivated plants for upwards of a hundred years.

In fixing a date for the earliest record of an undoubted edged flower, I am indebted for valuable aid to my friend Mr. Harrison Weir, who, in a communication to the *Gardeners' Chronicle* of May 6, 1882, refers to Sir Thomas Moore's "Flower Garden Displayed," published 1734. In this work many Auriculas are described, some of them introduced from Holland, and others raised in this country. It is important to note that the Dutch and the English varieties appear to differ as Alpines and true Auriculas, both classes finding favour here, but the English raisers having an especial affection for Auriculas proper, as apart from the Alpine section. Now it is of the highest importance to observe, that amongst many flowers of a class known as "painted ladies," because delicately improved, as the ladies of that day were, with a dusting of white powder, several are described as striped, and one as distinctly edged. The edged flower is called Honour and Glory; it is said to have "a good white eye, and the flower striped with a dark reddish purple on a white ground, so as to leave the edge of the flower white." I repeat that this contribution to the history is important, because it not only places before us an undoubted edged flower, but it shows that the difference between stripes and edges was recognized. More than this, it shows that striped flowers were much valued, for one called the Royal Widow was sold for ten guineas, but the value of the edged flower is not suggested. It would be delightful could we find in the winning stands of the present season an example of the edged flower of 1734, which was very different to Parkinson's green with purple edge. As we cannot find the flower, we will look for Honour and Glory of a larger kind. Perhaps in the soundness of our work, and the sweetness of our tempers, and the earnestness of our hopes, we may be promoting a higher and wider appreciation of the Auricula, in which case honour and glory are secured, and we may safely proceed in the good old way, according to the sacred precept, "Whatsoever thy hand findeth to do, do it with all thy might."

Let us now ask the question, Whence came the Florists' Auricula? Charles Darwin, in "Forms of Flowers," page 43, derives it from Primula pubescens, which is represented as a hybrid between P. Auricula and P. hirsuta. Herbert, in "Horticultural Transactions," vol. iv., page 19, considers P. Auricula, P. helvetica, P. nivalis, and P. viscosa to have been concerned in the parentage. Indeed, Mr. Herbert considered he had raised a powdered Auricula from P. nivalis, which may be regarded as a white-flowered variety of villosa of Jacquin. As he gives no description, it is impossible to say whether his plant would pass for an Auricula if brought up for judgment here to-day; but he was not the kind of man to make any glaring mistake, and his plant must have differed from nivalis to entitle it to such special mention. Mr. Herbert, at the same reference, suggested that P. Auricula, P. helvetica, P. nivalis, and P. viscosa are but varieties of one and the same species. To the list may be added hirsuta, pubescens, minima, and nivea; for in truth we are now trading in names, and we shall have to be careful that we do not mistake shadows for substances. In his "Die Geschicte der Aurikel," Professor Kerner avows his belief that Primula Auricula is not subject to variations, and that it probably did not keep a place in gardens for any length of time beyond the middle of the seventeenth century. But then he obtains for the making of the garden flower the blood of P. Auricula and P. hirsuta, which he regards as the parents of P. pubescens; and from this last, a reputed hybrid, he derives both the edged and the Alpine varieties. This proposal will not be accepted by many of the raisers of seedlings, whose experiences have rendered them familiar with the peculiarities of both classes. It affords but poor promise of an explanation of the persistency of the yellow colour and the farinose decoration of the show flowers. Nor does it satisfactorily explain the shaded margin and the persistently naked leaf

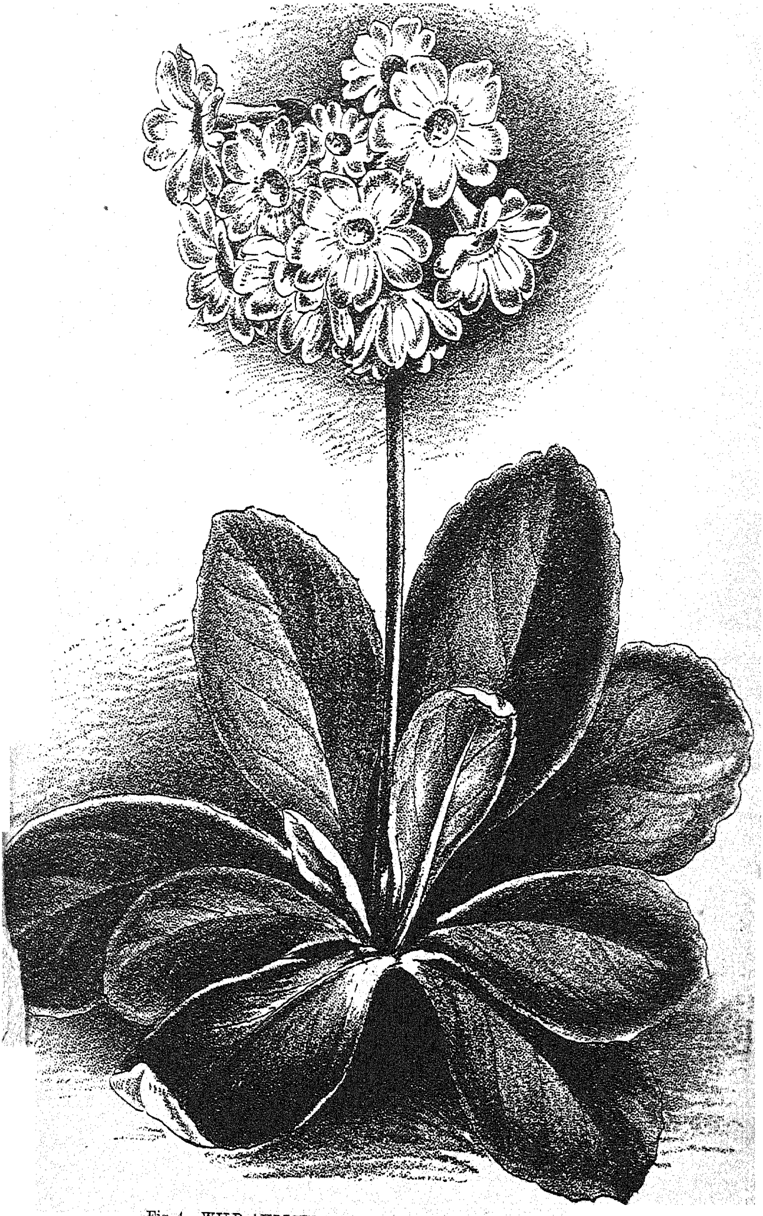

Fig. 4.—WILD AURICULA, *Primula Auricula* (Flowers yellow).

of the Alpine section. As regards the yellow of the show flower, it does not appear in its true proportions to the casual eye; but if you will carefully wash away the paste, you will find that it is laid upon a yellow ground. It seems to be the function of paste to play a game of deception. Kerner's views have been partially approved by Mr. J. G. Baker, of Kew; but he appears to lean to Primula Balbisi as a prominent progenitor, and he associates the edged flowers and the Alpines as at least not specifically distinct. The Rev. F. D. Horner, who combines experience as a raiser with knowledge of species and a fine faculty of observation, reckons Primula farinosa, P. scotica, P. marginata, P. intermedia, and P. viscosa as concerned in the parentage; and probably he would separate the edged flowers from the Alpines as of different origin.

Finally, I propose to you that we may with advantage regard the edged or show Auricula and the Alpine Auricula as, for present purposes, specifically distinct. The general agreement of the Alpines is with P. commutata and P. pedemontana, the last named being emphatically reflected in it. On the other hand, P. ciliata of Moretti may be associated with P. Auricula as concerned in the formation of the florists' flower.

But, after all, this is like arguing in a circle. The two that I have selected as begetters of each group are specifically one or two at the discretion of the botanists, as they may take broad or narrow views. We are in the same plight as regards the Primulas as we were in regard to the Daffodils before the Congress operated, when, as you will remember, a great reduction of the species was carried into effect. I will venture now to say, that the employment of names in the expression of our ideas as to the origin of the Auricula, must be subject to the possible reduction of names by the Revising Committee. I can find a dozen or more so-called species that are possible parents of the Auricula, but as I question their specific independence, I do not feel that making a catalogue is, in this case, the solution of a problem in biology. As for Palinuri, I cut short the connection by dismissing it as a possible progenitor of Auriculas.

Let us now make a brief study of an Auricula with reference to the facts that are before us. In certain characters it is constant. The leaves are stout in texture, often leathery, sometimes slightly cartilaginous. The flowers are always in a many-flowered visible umbel, never, like those of the Primrose, appearing singly from a concealed umbel. The floral bracts are short, never like these of P. calycina, longer than the flower stalks. The corolla is distinctly contracted below into a tube, and expanded above into a salver; it is never contracted into a cup or goblet, as in P. sikkimensis. The dusting with protective meal is not a distinguishing feature; but its abundant appearance as a decorative character of the exhibition flower is strikingly characteristic, and though it may be said that by long-continued crossing and selecting, its appearance there may be regarded as the work of the

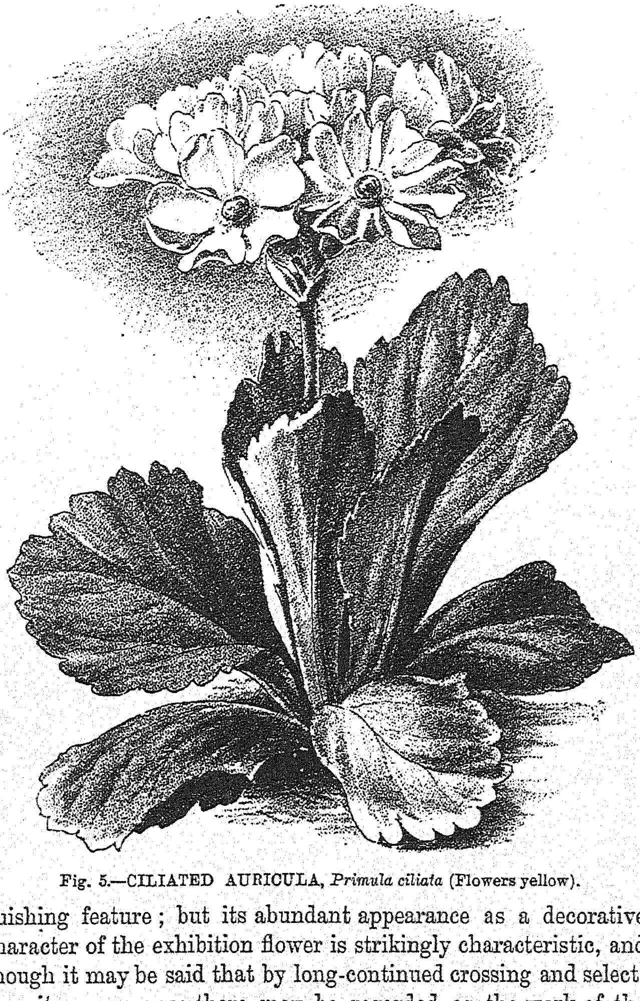

Fig. 5.—CILIATED AURICULA, *Primula ciliata* (Flowers yellow).

artist called Man; yet his work is limited, not only by the capabilities but by the disposition of nature. The powder belongs to the face of the flower, although its quantity and arrangement may be an exaggeration of nature's intentions. The show of

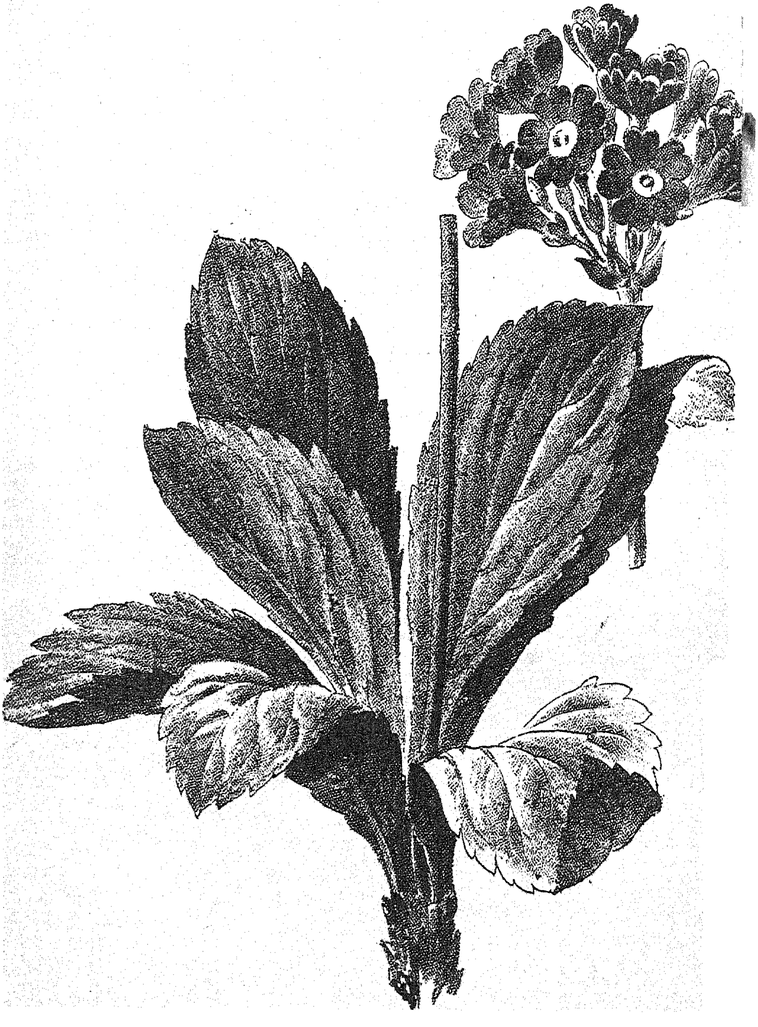

Fig. 6.—ALPINE AURICULA, *Primula pubescens* (Flowers purple).

yellow in the colouring of the flower is a constant character. This is a colour wanting in many of the supposed parents. It should be borne in mind that the flowers of highest quality represent long-continued and severe selection; and therefore in an exhibition, or even in the general stock of the cultivator, we do not see the entire character and possibilities of the flower. The seed-bed offers the raiser many that he will simply destroy, because of their nonconformity to rules, and amongst the condemned will be many of the so-called fancy flowers, that have no body colour, and approximate to the species. It should be remembered too, that all the edged flowers have green edges; for although classed as green, grey, and white, it is only the relative density of the meal that makes the difference. It has been boldly declared that this green colour is a monstrosity, indicative of a return of the flower to the status of a leaf, but we will defer the serious consideration of that proposal until we see the flower take the form of the leaf in addition to a touch of colour, which, from the florists' point of view, is one of its distinguishing beauties. It would be more reasonable, perhaps, to regard the green colour as a remainder of the original colour of the flower, for, according to the doctrine that has found general acceptance, the flower should be first green and then yellow, with the potentiality of changing to red and ultimately to blue.

Considering Professor Kerner's proposal in connection with these facts, it may not be irreverent to say that it leads us nowhere. We are to derive two groups of plants that differ by larger degrees than many that are recognized as distinct species, from a parent plant that is a reputed hybrid, and that possesses only a few of the characters required. We are assured that the purple and marone colours that are so prominent in the edged Auriculas, cannot be derived from a species known as affording only shades of yellow. Those who make the declaration evidently forget the wide range of colouring of the common Primrose, wherein we have almost every colour except true blue. Linnæus grouped Primroses, Oxlips, and Polyanthuses as forms of one species; and that view, though for long repudiated, is now generally accepted, and the point is especially insisted on by Bentham in his "Handbook of the British Flora." Between yellow and blue there may be somewhat of a gulf fixed, especially in the variations of a species; but from yellow to shades of red and purple is a transition far from uncommon. We have examples not only in the Primrose, but also in the Chrysanthemum, Hyacinth, Tulip, Pansy, Carnation, Hollyhock, and Antirrhinum. If you wander about in search of a source of the red and purple tones in show Auriculas, you will never find means to account for the brilliant violet-blue body colour of the variety known as Colonel Champneys, whilst others may be found that are apparently equally far removed from the possibilities of the botanical colourist. The truth appears to be that the colours we cannot by direct descent account for are in reality self-evolved, and belong to the category of changes that accompany and follow cultivation. In other words, these colours, with other characters that might with equal reason perplex us, are in a certain sense laid on by the hand of the cultivator. It is the fear of the botanist, who cannot recognize any merit in his brother the florist, that prompts him to find in this or that flower that the hand of man has left untouched the sources of properties that the florist has developed by long-continued cultivation in view of an ideal model, towards the realization of which he is ever striving but never attaining, though happy in the endeavour, and justly though quietly proud of what so far has been actually accomplished. To obtain the two great classes of Auriculas from Primula pubescens is a greater extravagance on the part of Professor Kerner than any florist has ventured on as yet; but the florists have discovered long since that seeds derived from show flowers do not produce Alpine varieties; and, on the other hand, it is all in vain to hope for edged varieties from the seeds of the Alpine section. The general acceptance by the botanists of the proposal of Professor Kerner, shows how much they need in their researches the aid of men who have acquired experience in the raising of new varieties of garden flowers, and in the management of garden plants generally.

Parkinson, 250 years ago, had a green flower with a purple edge. That must have been in existence long anterior to the writing of the "Paradisus." It is not extravagant to entertain the supposition that it had been in existence hundreds or thousands of years before. In the same collection were striped flowers, and these appear to have increased until in the early part of the eighteenth century they abounded. Then, again, we hear of an edged flower, called Honour and Glory, in the year 1732, when Sir

Thomas Moore described it. Since then the edged flowers have increased in number, and now constitute a race that has all the needful characteristics of a species. The green has proceeded outwards to the margin and settled there; the stripes have moved in the same direction and formed a ring within the margin; and the farina has accumulated around the centre to form what is termed the paste; while a rich tone of yellow marks the centre, and gives accent to the green of the primal flower, the result being an arrangment of colours in four orderly masses, three of them in circles of definite geometrical proportions. The Carnation offers a nearly parallel example, for here we see the flakes of the flower moving outward to the edge to fashion the Picotee. It is

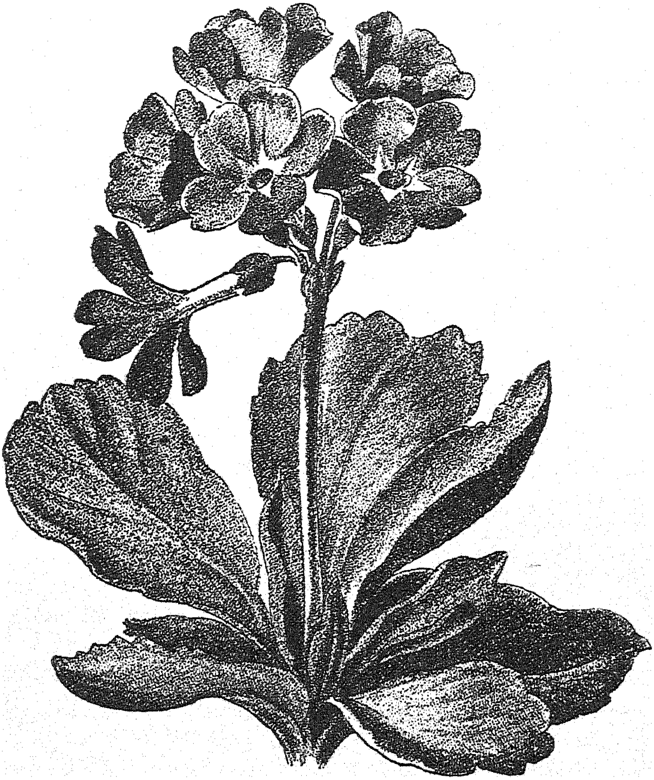

Fig. 7.—VARIABLE PRIMULA, *Primula commutata* (Flowers rosy red).

like the action of centrifugal force, the colours appearing desirous of moving off into space. What is termed the thrum does not appear to demand special notice in connection with the origin of the flower, but I shall not seriously interrupt the study of the subject by remarking that Charles Darwin found the short styled flowers the most productive of seed, and thus the taste of the florist in this respect is in strict accord with the frugal notions of nature. The rich yellow of the thrum is another feature favourable to the flower, which is as hardy and vigorous as any of its kindred, although commonly represented by the traducers of the florists as a debilitated thing that requires a man and a boy to hold it up.

The Auriculas naturally divide into two groups, the Alpines leaning to Primula villosa, the Auriculas to Primula Auricula. There does not appear to be any necessity for the admixture of Primulas that has been hypothecated for the formation of these flowers. The facts of history suggest that in all their more distinctive forms these two sections represent only two species, and that each in its essential characters is self-contained and self-containing. We have no proof at any time of distinct hybridity, but it must be acknowledged as a fact favouring the view of a considerable range of parentage, that the allied species breed freely together. The Primulas that most often come into contact with man are like him of a sportive nature. The laced Polyanthus might perplex us with its golden edge, and there are many edged Oxlips in the present exhibition, and some that display stripes and incipient edgings, and that are probably in a condition of change corresponding with the Auriculas of Gerarde and Parkinson.

Sir JOSEPH HOOKER, at the conclusion of Mr. Hibberd's paper, and at the invitation of the Chairman, said: I am most unexpectedly called upon to say a few words with respect to the paper we have just heard. I need not say it is an easy task, for I have rarely heard one that has given me more information or pleasure. I may truly say that I knew little about these Auriculas until what I have heard to-day from my friend Mr. Hibberd. I was particularly glad to see this Auricula *(pointing to a specimen of the wild type)* brought into prominence to-day, because I think it was in the *Botanical Magazine* that my friend Mr. Baker figured the true origin and source of the Auricula. Speaking generally, I regard these Conferences as of the greatest importance, both from a botanical and horticultural point of view. If they remind me of one thing more than another, it is of the pleasant days I used to spend more than 50 years ago at the horticultural meetings in Regent Street. I have always longed that such days might come again. They were presided over by Dr. Lindley, and we met the most celebrated horticulturists of the day, all ready to speak on the subject that they knew best. I can conceive no more useful work for the Horticultural Society than a series of Conferences like this, and I should only be too glad to see them held more frequently. I invite the fellows present to return a hearty vote of thanks to Mr. Shirley Hibberd for his most interesting and instructive communication.

Mr. J. G. Baker: I really have little right to speak on the matter, because I am not in any sense a Primula specialist. I endorse, in the first place, most cordially everything that Sir Joseph Hooker has said about the great interest of Mr. Hibberd's paper. We are very much indebted to him for the pains he has taken to work out the history of this matter. Amongst the most interesting points in botany are the questions of the origin of these doubtful garden plants. There are many common garden things of which we do not know the history, and there can hardly be any more useful task for a Society like this to undertake than to lend the weight of its influence to those engaged in the endeavour to work out the questions, such as the history of the Potato and the history of the cultivated Auricula. These are really among the most interesting problems that we can possibly deal with, and I have looked forward to this Conference with very great interest, because it was likely to lead the way to a solution of the matter, so far as the Auricula is concerned. Mr. Hibberd has treated the question most fully and admirably from a florist's point of view, and if in the remarks I am going to make I simply dwell on those points in which I differ from him, I am sure neither he nor you will suppose that I wish in any way to undervalue his paper. As I came up in the train I jotted down one or two points to which I felt inclined to take exception. The first was this. He speaks of the botanist as not recognizing any merit in his brother the florist. Of course that may be only a mere casual remark, but to that I wish to enter, as I am sure Sir Joseph Hooker and all botanists here will, a most decided protest.

In the selection of questions like this, the only hope of arriving at any definite solution is from the co-operation of botanists and horticulturalists. The value of the Royal Horticultural Society lies in the fact that it furnishes common ground on which botanists and florists can meet together, and put before a meeting like this the contributions that we have to make to our knowledge of the subject. When I wrote a few words in the *Gardener's Chronicle*, June 13th, 1885, p. 757, on this very question a year ago, I expressly said that the reason why we as botanists could not come to a conclusion on the matter was that we needed to have laid before us and consider fully the evidence the florists can give. Of course in a question like this the florists can tell the botanists far more that the botanists can tell the florists. With regard to the historical point of view, I think, however, that I can tell Mr. Hibberd a few things that are not contained in his paper. In the first place, there is an excellent figure of an Auricula of an earlier date than that to which he refers in the New Kreuterbuch book of Matthiolus, page 403, published in the year 1563. He gives an excellent though rough figure of an Auricula. That is the earliest figure which I know of, and no botanist could see it and read the remarks without agreeing that it represents the wild Primula Auricula of which we have been speaking. From the "Stirpium Adversaria Nova," of Lobel and Pena, published in 1605, we find that at the beginning of the seventeenth century purple, rose, and white-flowered Auriculas were known in cultivation. The next statement by Mr. Hibberd to which I take very decided exception is this. "But the sixteenth century botanists were but little better informed on the subject than the writers of the later Roman period, and it would be waste of time to attempt to formulate their scraps of information." Now Mr. Hibberd was never more mistaken in his life than he was in making that statement, and I am sure Mr. Churchill will back me up. The fact is that Mr. Hibberd has dealt with the early books, and taken great pains with them, but too much on the plan of the Irishman who said that one man was as good as another and a great deal better. The fact is that those early books are just like recent books, exceedingly variable in their value. Some are mere slipshod compilations; some contain a fund of original observation; and the one book of all other which furnishes full and clear information bearing upon th subject is the book which I hold in my hand—"Rariorum Plantarum Historia," by Clusius (1601). That book Mr. Hibberd dismisses quite casually, but that book really contains the key to the whole question. If I could have got hold of Mr. Hibberd before he wrote his paper, I should like to have locked him up for a morning that he might settle down and fully study that book before committing his remarks to paper. Clusius knew extremely well the ground with which Mr. Churchill is now so familiar, the Alps of Austria and Styria, and in this book he describes in full detail the Primulas of the Austrian and Styrian Alps. He describes eight of them and gives figures of six, which are admirable, and which can be easily recognized as being plants that we know perfectly well at the present day. That is, in fact, the basis of the whole thing, and the characters of these eight species and the figures of the species were thoroughly worked out by the end of the sixteenth century. There is a figure and a description of Primula Auricula, which Clusius calls "Auricula ursi." The serration in the leaves is rather exaggerated, but there cannot be any question or doubt that it is the true Primula Auricula of botanists, as found at the present day. The second figure which Clusius gives is *Primula pubescens*, which he calls "Auricula ursi 2." Clusius says that he himself introduced the *Primula pubescens* into cultivation, but that the first one was already widely spread in the Belgian Gardens and had been in cultivation before his time. The other six, four of which are figured, do not specially concern the present question.

Now, Mr. Hibberd brings Gerard in evidence. In the first edition of Gerard, published in 1597, there are two figures given bearing upon the present subject, and comparing those two figures all the value which we get from them is this. The figure of the true Auricula is simply an exact copy from the figure of Matthiolus in 1563, and the other is a perfectly ideal figure which does not agree with anything whatever—Gerard evidently evolved it out of his own consciousness. Mr. Hibberd goes on to speak about Johnson's edition of Gerard. Now the figures in that edition, with one slight exception, are simply of no value whatever as bearing on the subject, because every one of them is taken bodily from Clusius, so that we may leave Gerard and Johnson entirely out of court.

What I suppose to be the history of the Auricula is something like this. There is no mention of it whatever in Turner's "New Herball" (1548), but by 1563 the yellow Auricula was widely spread in cultivation and well known. Forty years later, in the time of De l'Obel, it had put on a large amount of variation in its flowers. The principal Alpine species were well known, thoroughly characterized, and well figured before the end of the sixteenth century; so that I think that florists are not to be trusted entirely to decide these matters without having botanists to look after them. I think that this Exhibition will furnish us with an exceedingly good opportunity of fully settling the question that Mr. Hibberd puts, but to which he does not really give us any definite answer. Two theories have been propounded. One is Kerner's theory of the matter, and the other is my own. Mr. Hibberd seems to doubt whether these Alpine Primulas are hybridized to any large extent; but look at the way in which the common Cowslip and the Primrose hybridize. You cannot go into any field in the north of England without seeing that they do hybridize most fully. Now, Kerner, of all men, has investigated this question most fully. He is the greatest authority on this subject. He is well qualified to speak for himself, and we are fortunate in having the presence here to-day of the Englishman, Mr. Churchill, who knows more about these matters than any other living Englishman—one who knows Kerner's writings most thoroughly, and who has worked over the ground that Kerner has dealt with. It is not for me, when Mr. Churchill is here, to say anything about Kerner, who is the great authority upon the question of hybrid Primulas, and Mr. Churchill is the great English authority upon the botany of the Tyrol; and I hope he may be induced to give us his opinion on the subject. All I have to do is to say a few words in defence of the theory which I myself brought forward. I have come to this meeting direct, and have as yet had no opportunity of verifying that theory by comparison with the vast mass of material accumulated in the Exhibition below, so that I really do not know any more about the matter than when I wrote a short paper in the *Gardeners' Chronicle* a year ago. I do not accept Mr. Hibberd's version of my theory as a complete one. All that he says is, that I, to a certain extent, endorse Kerner. My theory is, that the great mass of these garden Auriculas originated from the wild species, *Primula Auricula*, which is widely spread in Switzerland and Austria, and throughout all the Alps of Europe, and from its varieties or hybrids, *Balbisii, venusta* and *Göblii*. This is the Linnæan type (*alluding to a specimen on the table*). The characteristic of all the forms of this *Primula Auricula* is an amount of meal upon the leaves, spreading up the leaves, the stalks, and the peduncles, and extending to the calyx. The variety Balbisii differs from the type Auricula (it still keeps its yellow flower) in its more hairy leaves and more toothed leaves. Then there is a third plant which has been supposed to be a hybrid, but may be a mere variety of *Primula Auricula*, namely, Primula venusta. I do not see any specimens on the table, and I do not know if there are any down below, but it is in reality one of the plants we ought to look to, because it has an intensely purple flower, and I think it is extremely likely that it is from that that the purple colour of many of the garden Auriculas has come. But the plant which most nearly matches the common garden Auricula is Kerner's *Primula Göblii*. It is said to be a wild type. *P. Göblii* may be a hybrid or it may be a variety of *P. Auricula*, but I find no difficulty in supposing the mass of garden Auriculas have come from this, from *venusta*, from *Balbisii*, and from typical *P. Auricula*.

What cultivators call the Alpine Auricula I believe to be substantially *Primula pubescens*, which is a plant which Kerner writes about. The way in which I differ from Kerner is that instead of supposing this *Primula pubescens* to be the parent of all the garden Auriculas, I consider that *Goblii, venusta, Balbisii*, and typical *P. Auricula*, are the ancestors of the common garden Auricula, and *pubescens* the progenitor only of what gardeners call the Alpine Auricula. *Primula pubescens* is a plant which Clusius introduced into cultivation 200 years ago. There are in the Alps of Switzerland a number of forms nearly allied to *pubescens*. Whether they are hybrids or true species does not matter much. There are plenty of them in the Alps of Styria and Switzerland, and I think if you compare your cultivated specimens with the wild types—which there is abundant opportunity to do—you will agree with me, I believe, that this theory fully meets the facts of the case.

MADAME MERIAN'S DRAWINGS.

Before resuming his seat, Mr. Baker said that he had been asked by Professor Oliver to exhibit a sheet of drawings made by Madame Merian, which date back to a much later period than the end of the sixteenth century. The artist died in 1716, and of course we have no knowledge of the period when these drawings were made, but they are very valuable and interesting.

Professor FOSTER: I rise with great diffidence, but my chief object in so doing is that I may, if possible, bring Mr. Churchill on to his feet, because I think it is very undesirable that we should not have the advantage of his words, as we have undoubtedly the advantage of his presence. He will, at any rate, kindly correct me when I make mistakes in what I am about to say. I imagine the case stands somewhat in this way. There can be no doubt that *P. pubescens* is a hybrid between *P. Auricula* and *P. hirsuta*. That is a fact which we may take as settled. I think it is also a fact that Clusius (and I am sure everyone will join with Mr. Baker in a vote of admiration for the writing of that great man) sent from the Alps to Belgium numerous Alpine Primulas, but he says that his friends complained that they most of them died. The two that lived were *P. Auricula* and *P. pubescens*. That is a second fact. A third statement I have to make is in the nature of a question. Is there evidence that *Primula Auricula* by itself, without the admixture of any foreign pollen, ever sports? Against the idea of its sporting is the fact that it has spread widely, but has, in spite of its wide distribution, still the same characters. That is against the idea of any tendency in the plant to sport. On the other hand, *P. pubescens* shows indirectly its hybrid origin by sporting. I think I am right in saying that you may in the same place gather as many as nine different colours and varieties of *P. pubescens*. I have seen it stated somewhere as a matter of common note that *pubescens* is an Alpine Primula which sports very largely. Put these facts together; first, the fact that to Belgium, whence obviously the Auricula sprang, there were sent a number of Alpine Primulas, and of those Alpine Primulas the two which flourished were *P. Auricula* and *P. pubescens;* secondly, the fact that *P. pubescens*, in itself a hybrid, sports largely, while *P. Auricula* by itself does not sport largely; and it seems to me the probability is that your Auriculas, either the ordinary Auriculas or the Alpine, have come, not from *P. Auricula* only, but from *P. pubescens* also, possibly crossed back again with

P. Auricula. I do not see any other way out of the history. Seeing that the Auricula was started early, though it has progressed since that time, it is extremely unlikely, though it is possible, that other Primulas were subsequently added to the plant; but we have a possible origin, a source of complicated blood in *P. pubescens* and in *P. Auricula.* I do not know whether Mr. Baker will consider this as a union of his theory with Kerner's. I find a difficulty in accepting Mr. Baker's theory, because I cannot recognize any known tendency in *P. Auricula* itself to sport; therefore I imagine that in all the Auriculas there is some foreign blood, and from what we know of its history, and from what we know of the blood itself, that foreign blood seems to me derived from *P. pubescens.*

Mr. Lynch: I would suggest that some experimentalist should take up the subject and study it synthetically. By hybridizing those forms mentioned by previous speakers it is quite possible that a plant which may be considered to represent the Auricula could be obtained. I should myself expect to get at the origin of the Auricula within narrow limits, because when the Auricula became established there was nothing known about artificial hybridization. Possibly some characteristic plants were gathered in a garden, seeds were raised and a selection made, and thus the Auricula became established. I think very highly of Mr. Hibberd's view, that a great deal of what we see now in the Auricula has been evolved artificially. So much has been evolved that we cannot now see what the original was. I do not know that a comparison of the seeds has been made, but I know that in some allied kinds they vary very considerably, especially the Indian kinds, and possibly some light may be thrown by a comparison of seeds, but it is one that I have not been able to make.

Professor Foster: With regard to the seedling which Mr. Hibberd showed—am I to understand that that is a seedling from the wild Auricula?

Mr. Douglas: No, Mr. Hibberd made a mistake in that; it was not a seedling from the wild Auricula. I consider it to be a reversion.

Mr. Bolton: As a florist I may express the opinion that I have formed with reference to the origin of the Auricula. What I first read about the Auricula was that it was originally raised from *Primula Auricula*, but I never could find any trace of resemblance to that species except in the meal. I have raised many thousands of seedlings at various times, and I have found forms amongst them as much like the original species as those that have been exhibited to-day. I could have brought one exactly similar to the last one put forward by Mr. Baker that has been raised from my own crossing. I have taken very great care that there should be none but Auricula-edged flowers in the place, not a single other Primula on the premises. We have had Cowslips from the laced Polyanthus, and consequently I think a great deal as to the origin of the Auricula from the *Primula Auricula* is mere conjecture.

Mr. Fraser: I have little doubt that the forms which we have in the gardens have all originated by a long process of selection. But where do we get the various colours from? We see the type is yellow. That different colours have been found in the wild state I do not deny. Then, if we take *P. veris*, we find a great number of variations of colour; and also in the garden forms of Polyanthus. I ask where the colours come from? Possibly I shall be told they arise from hybridization one with another. But the original form is yellow. I maintain that all these colours simply arose from variation by selection. When once you get a plant to vary, you can increase the tendency by selection. All these plants have been in gardens so many years that they have been simply selected through the influence of man's tastes and through his desires. Then if we ask how they originated in the state of nature, we find that all the most predominant forms are yellow. I consider that these yellow colours lend themselves, very generally, to different insects that effect the processes of fertilization; so that we find other colours have originated by a process of selection, a kind of specialization. The yellow and pale colours would confine themselves to fertilization by night-flying moths, and the shape of the corolla tends to point to the same thing. The yellow, being the predominating colour, would lend itself to the greatest number of fertilizing insects; and when other colours arise, we can imagine these to have been specialized from common forms by insects. So, in the same way, under a state of cultivation, all the forms can be traced back to the original; and we see that they have simply arisen by reason of a long course of selection through centuries of cultivation.

Mr. Potter: I think *P. Auricula* is a variable plant; and I believe, if we could trace it back, we should find that *Primula pubescens* is a hybrid between *P. hirsuta* and a form of *P. Auricula*. In *pubescens* the absence of the meal is to be noted.

Mr. Hibberd: It will be prudent, I think, to say a very few words, because the discussion has taken such a course as this, that when one calls black white, the other one asserts it to be black, and the different speakers have corrected one another. They seem all to have come to the same conclusion as myself, and although my brother Baker disapproves of my cavalier way of treating the old botanists, I consider them of little value when considering edged flowers. He considers the *Primula Auricula* as the parent of the edged flower. There is this difference between Mr. Baker's story and mine, that he gives more importance to *P. pubescens* in reference to the Alpine section. Now my paper says that the edged and the Alpine are two distinct classes, differing in their origin. I have satisfied myself of that by endeavouring to breed one into another, and they won't do it, so that the differences amongst us are very slight. We have before us a fine business proposal from Mr. Lynch—that it should be now treated synthetically. We have been pulling it to pieces, and we ought perhaps to build it up. I know of no man so competent to undertake that task as Mr. Douglas, because he is not only a cultivator, but a thoughtful, observant man, who would not trouble us with any mistake, and if once more the variations to a certain extent can be obtained from the wild plants, then we should have something solid to stand upon. The best part of our business this morning has been to record our opinions; but permit me to say, if my friends will allow me to do so, that with respect to that, my opinions and all other people's opinions are of very much less importance than demonstrated facts.

Mr. Churchill on the Origin of the Auricula.

[Since the discussion on the subject of the origin of the Auricula took place, Mr. Churchill has been good enough to contribute to the *Gardeners' Chronicle* the following statement of the main points contained in Kerner's "History of the Auricula."—Ed.]

Mr. A. W. Bennett published a summary of it in the *Gardeners' Chronicle*, Vol. iv. N.S. (1875), p. 806; still, a restatement may be desirable now, *apropos* of Mr. Hibberd's paper.

Kerner's article appeared in the sixth volume of the *Zeitschrift der Deutschen und Oesterreichischen Alpenvereins*, Munich, 1875, and was published also as a separate pamphlet of sixty-four pages 8vo, at Innsbruck. For clearness I will number the different points of the history.

1. About the year 1570, the Emperor Maximilian II. possessed a large garden in the neighbourhood of Vienna, which Clusius repeatedly refers to, containing a great number of species, to which both Italy and the eastern Mediterranean supplied a rich contingent.

2. A passion for gardening had seized upon the noble Viennese ladies and others of that period; and the peasantry used to bring down to the Viennese markets for sale specimens of many kinds of Alpines—among others, *Primula Auricula*, L., *P. Clusiana*, Tsch., and *P. farinosa*, L.

3. The Belgian L'Ecluse (Clusius), who was the greatest botanist of his day, was in 1573 invited by the Emperor to Vienna, and received the honorary title of Court Botanist.

4. In his Vienna garden, Clusius had a special portion devoted to Alpines, and cultivated as many as fifty species, with the object of making them permanent ornaments of a garden.

5. He had an especial preference for the Alpine Primulas.

6. Others, as Professor Aichholz, in Vienna, who in 1576 made excursions in Styria; Camerarius, of Nuremburg, in the Alps of Salzburg and Tyrol; and Schlick, of Kaufbeuren, in the Rhœtian Alps, brought down, like Clusius, for cultivation, numerous Alpines.

7. When Clusius left Vienna to settle in Frankfurt-on-the-Main, he commenced a most active correspondence with Viennese and other ladies, noblemen, landowners, priests, apothecaries, and others, upon botanical matters; and in this way was continually receiving both living and dried specimens of Styrian, Carinthian, Salzburg, Tyrol, Bavarian, Swiss, and Venetian Alpines, as well as plants from Belgium, England, Spain, Italy, Hungary, Crete and Constantinople.

8. Clusius bewails the difficulty he meets with in "taming" these Alpine Primulæ; and especially laments his want of success with the "blauen speik" (P. glutinosa). Two only, P. Auricula, Linnæus, and P. pubescens, Jacquin, responded to his efforts to cultivate them.

9. Of the latter Primula, which he calls Auricula Ursi II., he says that he saw it first in the garden of his friend Prof. Aichholz, in Vienna, who had received it from a noble lady, but did not know whence she obtained it. He had sought for it in vain in the Austrian (Archduchy) and Styrian Alps; but, later, learnt from his friend that it was found in the Alps near Innsbruck.

In confirmation of this I intercalate the next paragraph.

[10. In Amthor's *Alpenfreund*, Vol. x., p. 178, it is stated that a certain Countess Trautsmannsdorf, who passed her "Sommerfrisch" at Schloss Trautson, near Matrei, on the Brenner Pass, sent the P. pubescens to Clusius for his Alpine garden.]

11. About 1582 Clusius sent from Vienna to his friend Van der Dilft specimens of P. Auricula and P. pubescens.

12. Their cultivation spread so rapidly that they appeared in most gardens in Belgium, Germany, England, and Holland by the middle of the seventeenth century; and in the year 1664 several cultivated forms of P. pubescens of different colours were known. They were also tried in Italy but without success.

13. P. Auricula, not yielding varieties, gradually disappeared from cultivation, while the other increased them continually until more than a thousand forms were in cultivation.

14. After Clusius' time the knowledge of the original habitat of P. pubescens gradually faded away.

15. But between 1774 and 1794, the *P. pubescens* was again found in Tyrol by Wulfen, not on the Alps near Innsbruck, but in the peasants' gardens at Windisch-Matrei. The peasants, on being interrogated by Wulfen as to its origin, would probably reply that they came from the neighbouring mountains. Wulfen, however, never saw any wild specimens, but sent specimens of the cultivated plant to Jacquin at Vienna, who gave it its present name.

16. Since then, although the Iselthal Mountains from Windisch-Matrie to Pregraten, and all the neighbouring Alps, have been by later botanists most diligently searched, no wild specimen has ever been found.

17. Not only in the gardens near to Windisch-Matrei however, was it grown, but also in many of the valleys of the Pusterthal, and also in North Tyrol in the Innthal.

18. In the year 1867, however, Kerner, who was accustomed to spend his summer holidays in the Gschnitzthal, discovered the P. pubescens (superauricula × hirsuta, All.) growing with its two parents, and another hybrid (subauricula × hirsuta, All.), P. arctotis, in the upper end of the valley in the neighbourhood of the Tribulaun, a dolomite peak.

19. Kerner adds that, as far as he knows, the Auricula (through P. pubescens) is the only Alpine plant that has become a generally cultivated florists' flower.

I think that to many minds the above paragraphs will be convincing as to the origin of the Auricula. I have seen in herbaria specimens of P. pubescens (wild of course) with much more of meal and of dark maroon colour than appeared in any living specimen produced at the exhibition.

But there are two other points that Mr. Hibberd did not call attention to, and these were, 1st, the occasional great size and variation in form of the bract; and, 2ndly, the deep and narrow denticulation of the leaf of some of the Auricula forms. I think he might well have asked how those two points could have been evolved from *P. pubescens*. But if he would deign once more to cast a glance at wild specimens of the despised *P. Palinuri*, he will find that it possesses by far the largest bract of any European Primula, and that its denticulation is deep and close, more so than that of *P. Auricula*, and in exact correspondence with the leaves of some of the forms of the florists' plant. In addition it will supply a golden-yellow for the flower, and abundance of meal, if it be thought that *P. Auricula* be too pale and too bare of meal to supply enough to *P. pubescens*. This conjecture, indeed, has already been made by Stein in his List of Primulas, 1882. I think it very plausible.

It is possible that another hybrid still may have assisted in the formation of the florists' flower, P. Göblii (superauricula × villosa, Jacq.), originating in Upper Styria, and first named by Kerner, in 1875, in his paper "On the Hybrid Primulas of the Alps," Vienna, 1875, offers meal in abundance. Anyone who saw the splendid specimen exhibited by Messrs. Backhouse of this wild hybrid, would see the close resemblance exhibited by it to the "tamed" plant, and it must be remembered that Upper Styria was one of the regions searched by Clusius and his friends; and as the butterflies were no doubt as busy in the work of fertilization in those days as now, P. Göblii may well have existed then and been brought down into lowland gardens by Clusius or others. I have been on the ground, but was only successful in finding the other hybrid (subauricula × villosa, Jacq.), viz., P. Kerneri, Stein.—G. C. CHURCHILL, in *Gardeners' Chronicle*, May 1st, 1886, p. 562.

Mr. BOLTON then, on behalf of the Rev. F. D. Horner, read the substance of the following paper:—

ON THE IMPROVEMENT OF THE GENUS PRIMULA. BY REV. FRANCIS D. HORNER.

I only take up this question at the direct request of my brother florist, Mr. Samuel Barlow, of Stakehill. The subject could not have been in better hands than his, nor associated with a name more known and honoured among florists. There is, however, this one thing to temper my regret, that I must take his place, and to add value to my paper, that the question I am to introduce is a very old and interesting one between Mr. Barlow and myself. Through all the years of our intimate friendship have we stood together over the Auricula in bloom, and taken careful thought as to the yet richer development of this highly-cultured flower, a favourite with us both from boyhood.

Mr. Shirley Hibberd, in his introductory paper, historical and descriptive, will have given some definite idea of what the florists' Auricula is; so that I shall not here be using technical terms altogether strange to those not conversant with the properties of the flower, some of which had not been acquired in the dawn of its culture some 300 years ago, nor are even dimly visible in the simplicity of its supposed wild ancestry. If any of the points for improvement should seem minute—perhaps fanciful—I can only say that the highest qualities have, as a rule, been gained only by such gentle gradients and slight curves as these. It is often some delicate touch, small in itself, but great in its effect, that raises a flower at once above the inferior or commonplace. To the accustomed eye the Auricula has an intense individuality, and very slight variations of feature alter an expression, and enhance or detract from a type of beauty.

In a breadth of its brilliant bloom, there is the effect as of many eyes turned steadfastly upon their admirers; and there are faces in the flowery crowd on which one may read many expressions of a life and character super-floral. Like as in a bed of Pansies there are many comical casts of countenance, expressive of astonishment, anxious inquiry, perplexity, and brown study; so here, in an exhibition of the Auricula, as representative of its beauty as can possibly be made, the flowers look all gentleness, candour, honesty, simplicity, and refinement.

Glaring faults that impart a low and evil look are all absent here; and hence I am not able to submit to you how impudent and barefaced is the "pin-eyed" flower, wherein the stigma, protruding from the hollow throat, is like a tongue thrust out. Neither, how loose and vacant is the expression of the inordinately large tube; and how cunning and cold that of one too small. Nor how lack of breadth, in the eye or "paste" of the flower, is like that in other eyes which cannot look you in the face; and how narrow ground colours betoken indecision and want of thoroughness. "Edges" have their own expression, too; something like meanness when too narrow, and akin to bounce in over-breadth; for excess of edge is often concurrent with excess of size, and coarseness, almost inseparable from immensity in the Auricula, is one of its gravest faults.

Had it been practicable, a representative collection of failures in desired qualities would have formed a very clear illustration of mistakes. Yet I would not say it would be convincing; for invariably the uninitiated friend who comes to tell you which of all you have he likes the best, settles his admiration upon something that has set at naught all proper principles, and he does violence to your feelings by approving of it. But the greatest ordeal of praise I ever had was the remark, transparently innocent, of an old country parishioner, "They almost come up to artificials, sir!"

The question in what direction efforts should be made for improving the florists' flowers of the genus Primula resolves itself, descriptively, into the statement of the shortcomings more or less prominent and obstinate; prospectively, into what the possibilities are of which hopeful shadows in faint shape are ca[illegible] before; and practically, in what system of experiments [illegible] should seek to overcome the faults, and win into realit[illegible] promise of fresh beauties that a flower, inexhaustible in its powers of variation, naturally affords us.

As an experimentalist I will adhere to the practical: use bare description as little as I may, and bring young hopes downstairs from the nursery realms of imagination as considerately as I can.

PROPERTIES.

Form.—The first property to be worked for in the Auricula is, I submit, the perfection of that form upon which the colour-attributes of the flower will be the most effectively displayed. Colour can always be worked up to, and the florist may tarry patiently for this until he has the form of grace whereon to call it into play. I always choose as the maternal parent of Auricula seed the best flowers I have in breadth, circularity, flatness, substance, and smoothness of petal; while for male parentage I do not depart further than must be from form. Petals cannot be too broad, so long as they will expand equally and kindly. If they do not meet through narrowness or roughness the beautiful design of the colour zones is interrupted by vacant spaces signifying nothing.

The edged classes and the selfs have each their own type of error in respect of form. In the "edges" it is generally a pointedness of petal; in the selfs a central notch or heart-shaped depression. In the edged flowers the fault has long been noticed and regretted, and has now been brilliantly overcome, especially from the appearing of Lancashire's Lancashire Hero in 1846 onwards; but among the selfs until recent times there was hardly an exception to the rule of notch. The indented petal of the self seemed silently allowed to pass as the typical petal of the class.

Selfs.—For improvement of the self Auricula, my experience convinces me that the best results are to be obtained through entirely self parentage. I would not say that a correct self flower has never come from edged parents, for Mr. Campbell believed that his brown self Pizarro, the best flower in the class at the time, was raised from a green-edged parent, and Mr. Simonite that a good blue self of his was obtained from a white-dged seedling.

in Certainly, however, my own best selfs have sprung from an e y self parents, and latterly from a self descent comparatively ancestral. Selfs have generally a shorter duration of bloom than the edged flowers, which possess greater stoutness of petal, and in which the green, whether pure or mealed, is a colour of greater and more leaf-like vitality.

It might be theoretical to suppose that, if selfs were crossed with these a greater substance of petal would be transmitted. In practice, however, it is found that all seed from purely edged parents produces a majority of self varieties, and vast numbers of these are notched, and frilled, and flimsy flowers. I have never had wilder flights of seedling selfs than from that grand grey-edge, George Lightbody. It would almost seem that an "edge" did not know what a good self ought to be.

I think that for selfs we should work patiently among themselves, advancing in substance as we certainly are by sure if slow degrees, and not weakening the newly acquired and most supreme point of the "rose-leaved" or perfectly rounded petal.

Another point to aim at in the development of the self is the addition of some that would be constitutionally later in blooming than most of those we have. Campbell's Duke of Argyll (rich crimson, but deeply notched) might transmit this habit, and be overruled in this fault.

The Auricula bloom in a collection loses much of its power and beauty when the quiet yet emphatic selfs are gone. It is like the beginning of the end, as when in the fading summer the swallows take their flight.

Edged Flowers.—With reference to improvement in form in the green, grey, and white edges, I would remark that in these, good form, beyond its intrinsic value, has an influence inductive of other good properties. Rounded petals are associated with roundness of the white-mealed circle termed the "paste;" while with the pointed petal the paste is often, as by a kind of sympathy, drawn into corresponding irregularities; which only intensify the serious fault of an angular appearance.

For form's sake, naturally, such flowers as have the roundest, broadest petals will be selected; and such a variety as George Lightbody, among those well known and distributed at present, will serve as a type.

If good form in both parents should justify it, my conclusions are that edged flowers should be crossed with their class fellows; for one line of improvement in the Auricula certainly lies in doing all we can to intensify and magnify the class distinctions, gaining green edges as deeply green as possible, and white edges as densely mealed. The "undecided edge," too green for grey, and too grey for a pure green, is not desirable. Still the Auricula is so very sportive that some decisive edges will be obtained from parents dissimilar in class; and the experiment is justified, of course, if there be no alternative, and if some marked improvement in form may be hoped for from it.

Petals.—Connected with form, in addition to the roundness and level disposition of the petals, may be mentioned their number. This is variable, even in different flowers on the same plant. Five is probably the normal number, for beyond this the Auricula will take a playful liberty with the proprieties of its Linnæan order, Pentandria, always producing just as many stamens as there may be petals; and if one be of inordinate breadth it is accounted as two, and decorated accordingly with two stamens. This may be a botanical misdemeanour, but is not an offence under florist bye-laws. The same is noticeable also in the florist Tulip, which is required to have petals neither less nor more than six, but is occasionally misformed with four or five, and seven or eight, when there is always one attendant anther for each. In the Auricula five or six petals are sufficient for a broad, round flower, and more than eight begin to look narrow and laboured.

Colour.—When we turn from improvement in form to views of improvement in colours, both in richness and variety, a very wide field of development lies before the florist. Possibilities peep out but half concealed or only in the rough, revealing themselves in the rare combinations of colours that a few seedlings crudely show; and these beckonings need but to be followed to obtain in time some new and beautiful combinations.

The Auricula is a most richly endowed flower, possessing already, singly or combined, all colours of the rainbow—violet, indigo, blue, green, yellow, orange, and red; and further still and rarer, that negation of all colours, black. In edges we do not look for a gift of other than the green, grey, and white, now so well known and fixed, while the colours of the paste and tube are constant and common to all. There remains but one more colour zone upon the flower, to give variety and play, and that is the ring or belt of velvety surface known as the "ground" or "body" colour.

Disposed between the green or powdered edge and the white-mealed "paste," it is a solid band along its inner edge; while on the outer it flashes in lively pencillings, bold and blunt in some varieties, sharp and delicate in others, towards, but not dashing through to the petal edge. It is this lively characteristic of the body colour that entirely takes away any tameness or monotony, hardness or fixity that a series of strict concentric circles might be supposed to have. The body colour should most certainly have a good solid foundation before it begins to feather off, because a few slight pencillings only have a very feeble and scratchy effect, while a bold and rugged style of its outer edge is massive and handsome in the extreme. But by an expressionless ring of black, dreary as a black hatband round a white hat, I would not advocate taming the Auricula down to the miniature similitude of an archery target. Such a picture of utter and unbending primness (for which the botanical equivalent is not Primula), as a series of severe circles, may indeed have been in old time perpetrated in hard diagram; but this was only as the bare skeleton which Nature in real life shall clothe with all fulness, softness, and grace and vivacity.

The body colour is the "iris" of the flower's eye, and black is at present the most settled colour. A good black is very safe and true, lasting well upon the flower, a most important point; and hence it has been a favourite colour, especially with florists in the north, and the more encouraged, pursued, and developed. Indeed other body colours were regarded with marked disfavour by old Lancashire florists, though if other colours had been worked up to the truth and steadfastness of the black, there is nothing but local fancy or prejudice to make them less valuable and less beautiful. Little encouraged in such variety, the Auricula has shown a capability, if only initial yet, of giving both blue and crimson as the ground colour in edged flowers. These will of course require cultivating up to intensity and steadiness, and I submit this as a very interesting new path of improvement.

One marked difficulty so far has been that of transmitting to any flower, whether self or edged, the all-important feature of a rich gold tube, if that flower has tints of violet or blue. Their tubes are pale or greenish-yellow, always a colour of low vitality and weak endurance. Some seedling blue selfs, however, by pollen from gold-tubed varieties, are better in this respect than the old blues.

Memories come back to me here of some old flowers that might have been helpful towards new combinations of colours that are faint and timid, and wavering yet.

Such were Moore's Violet, a green-edged flower, with violet body colour, and a green edge of Traill's (Rev. George Jeans), in which the ground colour was of a lilac tint. In white edges were Ashton's Bonny Lass, with beautiful violet, and Maria, richer in colour. These, however, and others of like colour, all were weakened by a pale and watery tube; and further, the ground colour was not of one uniform steadfast shade, which it decidedly ought to be in both edges and self Auriculas. Red or crimson as a ground colour of edged flowers has not yet been obtained of any intensity. Lightbody's Fairy Queen and Star of Bethlehem, and also Smith's Waterloo, were green edges, in which the body tints were a shade of red-plum, and a white edge of McDonald's was lighted up with a brighter red. Chocolate-brown is another possible change in ground colours worthy of being followed up. It occurred in Lightbody's white edge Countess of Dunmore, and in Smith's Ne Plus Ultra. These red and brown ground colours are happily not associated with the weak tube colours of the blues.

Mr. Simonite, in his Heather Bell and Aurora, has better blue-grounded white edges than the old ones, and the tubes, though not of a strong yellow, have more stability. An offer of a red-grounded green edge occurs in a rather erratic seedling of Mr. Rolt's. The edge is pure but insignificant, and the red ground colour brightens with age, but is too broad, and runs wildly out at the petal edges. Such a flower would be worth crossing with some green-edge seedling of fine form, in which existed the fault of a ground colour much too slight and narrow.

In new types of colour in selfs the last great acquisition came through Mr. Campbell's success in his efforts to produce a true crimson self. Some fifteen years ago he sent out, as the result of many years' work abounding in failures, two intensely crimson flowers—the one better than the other both in its colour and its rich gold tube, but both of them notched in petal. These flowers have transmitted their colour well to seedlings of better petal.

Within the last two or three years another new and very beautiful break in self colours has occurred among both Mr. Simonite's seedlings and my own, showing yet another direction in which we may seek to enrich and improve the Auricula. This new colour is a very lovely and decided pink. The flowers have happily been nearly always gold-tubed, and the petal is a fully rounded type. This young colour, however, is not easy as yet to obtain solid—*i.e.*, unshaded and steadfast. Some have failed by growing slightly paler with age, or in losing with age the surface of the petal; so that what is velvet at first is calico at last.

There is no doubt, however, that the true pink self is a coming flower, and I name it as one illustration more of the direction in which the Auricula may be improved.

I have spoken of the failures of this newly-won colour—the successes must speak for themselves when they can.

Adolescence.—There is something very curious in the blooming character of the first three years' life of an upgrown seedling which it is important to mark and allow for, because it certainly is connected with the practical part of our question.

It is not an invariable rule, but it is a frequent occurrence for a seedling, that blooms with brilliant properties in its maiden year, to flower the second year in much inferior if not loose character. This is oftener the case with the complex-edged flowers than with the simpler selfs. At the third year the flower may either return to its early promise, or go again astray. I do not know how to account for it, but it is a noticeable feature in a long experience.

It would seem as though the plant were affected by some unseen change or turning point in passing from its seedlinghood to becoming an established variety. Certainly some seedlings that show brilliant properties the first year never afterwards display them; and occasionally others, that one has gladly given away to friends with garden borders, have, like the "ugly duckling" of the story, developed into very swans of excellence.

I mention this, not only that joy over some sudden acquisition may be tempered with gravity, but also that doubt may be not unlighted with hope.

I do not cease to feel some anxiety for a brilliant seedling, and some hope over a rather disappointing one, till I have seen them at their third bloom. Some faults are decisive, such as the pin eye, the pale tube, the angular paste, the notched or pointed petal. Of such there is no hope. But if properties of tube and paste and petal are fine, I do not discard the seedling because, at its maiden bloom, the proportions and other qualities of the ground-colour and edge may not be correct. There may be a good flower in disguise.

ALPINE AURICULAS.

I pass on now to a brief notice of that other division of the Auricula as a florist flower, which is technically known as the Alpine. These very beautiful flowers possess, as features of distinction from the edged classes and selfs, a perfectly unmealed centre or eye, and petals richly shaded from the deepest to the lightest tints of that one colour which the flower has adopted. That shading cannot be in tints too numerous or too softly blended.

The tube of the Alpine so closely follows in colour the centre of the flower that it should have an expression in form all the more marked, because there is the less power of contrast with the centre by colour. It is a great point of beauty in all Auriculas that the mouth of the tube should be well defined, and rise fully to the level of the flower's face, otherwise there is the appearance of a weak and sunken eye.

The Alpine Auricula is divided into two sections, distinguished by the golden, and the paler, almost primrose-coloured centre. The golden centre is the higher type. In the Alpine, as in the edged flowers, it is again the flowers possessing violet or bluish colours that exhibit the palest yellows in the tube and eye. Flowers would no doubt be very highly valued in this class of violet shades if they could be obtained with the rich golden eye of those with crimson.

THE POLYANTHUS.

I must not close this paper without including the florist Polyanthus, a lovely sister of the Auricula, and in sore need of reinforcement in sterling varieties. Some of the very best Polyanthuses, like Kingfisher in the red ground flowers, are lost to cultivation; and among black grounds of high merit, Lord Lincoln seems all but gone. Many garden strains of Polyanthus are termed "gold-laced," but they are a far remove from the florist flower with its cultured properties. The resemblance in most of them looks nearest when seen at the greatest distance. The decision, purity, and refinement of our Polyanthus are not in them,

Mr. Barlow's success in raising both black and red ground flowers of very high character, perhaps in red more especially, is a proof that though the flower may not be more ready than its radiant sister, the Auricula, to give the properties we would have, still it will repay all good care bestowed in judicious crossing.

I do not think that any foreign blood of strains outside the florist pale, however proudly spoken of, should be introduced under the plea of giving vigour, which the standard old sorts have, alas! too often lived to lack. From such extraneous source of robustness will come much unruliness. A more safe return to soundness of constitution will be naturally obtained through seedlings, because seedlings naturally possess it, and happily young blue blood is no exception to the rule.

For suggestions of improvement in the Polyanthus, I can but briefly state the properties that require to be exemplified in as many living representations of their beauty as we can obtain. The two brilliant extremes of class colour will be a black ground, or a scarlet ground within the lacing of bright yellow. Whatever the body colour be, it must consist of one rich uniform shade; and the yellow, which is best when a clear lemon-gold, must be free at the eye or centre from any other shade of yellow. The gold of the lacing must exactly match that of the eye, and the lacing itself must be of exquisitely smooth edge and even width. It must both completely edge the petal and strike down through the centre of it to meet the golden eye. The central line of lacing is frequently broader down the middle of the petal than round the edge, but the nearer it is of the same width the better.

It is characteristic of the Polyanthus petal to be deeply notched in the centre, so that the circular edge of the Auricula petal is not looked for here.

The centre or eye of the Polyanthus should occupy a wide circular space upon the flower. It can hardly be too wide, and is often not wide and circular enough.

The mouth of the tube should be extremely well defined, and even most slightly raised above the level of the centre. As in the Auricula, the tube should be filled with bold anthers up to the surface, with the stigma almost sessile below; and all flowers should expand equally and well.

These are the points to be attained and strengthened in the improvement of the florist Polyanthus; and it will readily be seen how far these lines of beauty, which give such brilliance, purity, and refinement, lie beyond the comprehension of the common garden border strains, and how far too few are the beautiful florist Polyanthuses we have that fulfil this standard.

The CHAIRMAN: I shall now be glad to invite discussion on Mr. Horner's paper. These papers have been most carefully prepared, and it is most interesting to us in a conversational way to exchange our experiences with regard to the crossing of Auriculas. One thing Mr. Hibberd said just now—I think I must have misunderstood him—that the Alpine Auriculas were not derived from the edged Auriculas. I think I must have misunderstood him, but those are the words I think he said, and if so, it is quite contrary to my experience of them. I know when I spoke to Mr. Horner himself as to the difficulty of raising good seedling florist Auriculas without a very careful selection of parentage and fertilization, because of the probability of the edged Auriculas producing something like an Alpine Auricula, he said it was most necessary that there should be no Alpine Auricula anywhere near the place, for fear the bees and wind should carry the pollen from the Alpine Auricula with its strong pollen and supply the florist Auricula. He said it was necessary to entirely separate the Alpine section clear away from the florist section. My experience has been unquestionably with the florists' Auriculas, Colonel Champney, for example, and I have known the Alpine Auricula good enough to take its place in Standard 12. I think, therefore, probably you will be able to see that the Alpine Auriculas must not be placed too near the florist Auriculas, or a very bad strain of seed will be produced. That gives a clue to the way in which we may, in the future, improve the florist Auricula, and also by which we may by hybridization get new strains of florist flowers. There is one thing in florist flowers we should always aim at and desire to see maintained, and that is proportion, because if the centre, or the body colour, or the edge, are in the smallest degree out of proportion, then the beauty of the flower to the florist's eye in our view is gone. Proportion seems to me to be almost the very first characteristic, and next to get what we call a good colour, an absolutely white paste, a sound body colour and clear edge, with no undecided margin. I think such a man as Mr. Douglas should be able to give us his views, because he succeeded in producing the best flowers of the show. I think he showed the champion flower among the florists' Auriculas, and I think he might give us some idea of what he is working upon in producing the best forms of florists' Auriculas. There is one particular variety, George Lightbody, which seems to have been the parent of almost all our best recent endeavours in that way. I cannot speak from experience in that way. I have raised one or two flowers that have gained certificates, but Mr. Douglas has raised some scores.

Mr. BURBIDGE: There is one little point I should like to allude to in connection with hybridizing generally, that is, that I do not think we should look entirely to the flower itself for the colour. If you get the desired colour in any other part of the plant—even in the root—it is possible that you may get that colour in the flower by seeding and by crossing—by crossing especially. Take for example the common Primrose. If you look at the foot-stalks of the leaves you will notice a delicate pink colour in them. It is indicated in Dr. Masters' large diagram on the wall, and it is really in nature brighter than it is represented there. That colour we might expect to get in the flower as well as at the base of the leaves.

In the room below there is a very interesting collection of wild Primroses from Cornwall. Those Primroses have varied from a yellow colour just as one might expect them to vary from the amount of pink in the root of the plant.

I do not think we get new colours so often as we imagine in hybridizing, but I think we have got the power of developing the colour found in one part of the plant and causing it to appear in another situation.

Mr. BOLTON: I should like to say that we rarely get two seedlings of a similar colour. In reference to colour we look out for what we call in Lancashire deep, solid colours. We throw out everything that is watery-looking. If we want a black, we want a velvety black, not a dirty black; if we want blue, we want a deep blue; if we want scarlet, we want a bright scarlet. We like the black of the body ground of an Auricula for the very simple reason that it is the most difficult to be obtained. Take a green-edged plant. It may open black, as brilliant and pure as can be, but in the course of a few days, when the flower gets flat, it runs to pink and changes to red, and gets china-body-grounded. In reference to a few other matters in this paper, I understood that the paper was on the improvement of the genus Primula; but it treats of the Auricula and Polyanthus, and it will be a matter for gardeners to say how to treat other Primula forms.

Take the fancy Polyanthuses. We look upon those as the best that give us decided colours, and which have a brilliant effect in the garden, and we want something that is a distinct advance on anything before known. We have plenty of seedlings equal to the sorts in cultivation, but we discard them, as in the Auricula, if we find we have not a decided advance in reference to the habit, colour or freedom in blooming.

We cross greens together or cross two greys; we very seldom treat a grey with a green except in the case of a matter of very slight grey, when we want to get a rounded-edged petal. But, as a rule, all these crosses taken together in that direction bring us nothing of any consequence, we do not get a single step further. It is simply when we get tc treat with a plant like "John Simonite" that we get a distinct advance in the white edges. I cannot understand that plant coming with a white body ground. I think every flower that came out of that pot of seed had a yellow body ground, and "John Simonite" is generally jet black, but it will change to a reddish blue. All the Auriculas are generally seen in their best character here. If in some years we had a bad tube and a bad paste, they would be thrown out; in fact, they would not be kept at all.

The Chairman: There was one passage which I am sure was extremely interesting in Mr. Horner's paper. I should like to ask a question of Mr. Bolton with regard to it. Mr. Horner says, "Within the last two or three years another new and very beautiful break in self colours has occurred among both Mr. Simonite's seedlings and my own, showing yet another direction in which we may seek to nourish and improve the

Auricula; this new colour is a very lovely and decided pink." "There is no doubt, however, that the true pink self is a coming flower, and I name it as one illustration more of the direction in which the Auricula may be improved." The question I should like to ask Mr. Bolton is, whether there is any knowledge of whence that new colour has been derived, and how it has been obtained?

Mr. **Bolton**: In reference to the pink colour, it is something like the pink of the Primula rosea, a very beautiful soft pink. We have been trying for years to see if we could not produce a scarlet, or get a scarlet body ground on the green and the white edges. I think these pink selfs have been the result of a cross between "Duke of Argyll" and a few of Mr. Horner's seedlings. It has given what you may call a weak kind of red, but the pink has not been watery. The "Duke of Argyll" has no paste at all, and we have tried to improve that portion of the flower, and it has caused us to get into some more distinct colours.

[Mr. Horner has contributed the following note on this subject: "The pink selfs originated among seedlings from a violet self of Mr. Simonite's raising. He and I have seen in this parent, very occasionally, a violet petal with a streak of pink in it.—F. D. Horner."]

Mr. R. **Dean**: I will intrude on this meeting only a minute or two to state that in the paper which has been read the author alludes to the green-edged seedling with a red body colour instead of the black. In breeding for green edges, florists hitherto have endeavoured to get the deepest black body colour possible, but in the case of this particular flower you will observe the body colour has become red instead of black, and I think it possible, in course of time, we may have a distinct race of green-edged Auriculas with scarlet body colour.

Mr. **Bolton**: We have had it in that form, but it is so very bad and the edge flies so much that we have always discarded it.

Mr. **Baker** then made some remarks on the scope and objects of his synopsis, printed below:—

In my synopsis, said Mr. Baker, I have indicated what I understand to be the European species of the genus Primula, using the term species in the sense in which it is used in Bentham and Hooker's "Genera Plantarum," and in the Kew "Floras" of different parts of the British possessions. I have not attempted in the present paper to deal with the sub-species, varieties, hybrids, and synonyms, which will be found in Mr. Dewar's catalogue, classified in their relation to these specific types, as here briefly defined. In a complicated genus like Primula it is much the best plan to begin by learning thoroughly the clearly distinguishable species, and afterwards to work out the subordinate types, and to attempt to classify them in their proper order in relation to the primary types. In those difficult genera, with which horticulture has so largely to deal (such as Narcissus, Primula, Lilium, Iris, Crocus, Pelargonium, Fuchsia, Odontoglossum), unless this be done, and the different grades of individuality according to the rules of systematic botany be kept distinct as far as possible, we soon slide into confusion.

A Synopsis of the European Species of Primula, with their Distribution.

By J. G. Baker, F.R.S.

Group I. Primulastra.—Young leaves revolute, never mealy beneath. Calyx strongly ribbed. Flowers yellow.

1. *P. vulgaris*, Hudson (Primrose).—Leaves narrowed gradually to the base. Umbel sessile; pedicels long. Calyx-teeth lanceolate. Corolla-limb large, pale yellow.—Distrib.: Throughout Europe, except the Mediterranean region.

2. *P. elatior*, Jacquin (true Oxlip).—Leaves narrowed gradually to the base. Peduncles elongated; pedicels short. Calyx-teeth lanceolate. Corolla-limb large, pale yellow; throat without folds.—Distrib.: Throughout Europe, except the Mediterranean region. Differs from the hybrid Oxlip by its more villose calyx and paler corolla, not plicate at the throat.

3. *P. officinalis*, Scopoli (Cowslip).—Leaves narrowed suddenly at the base to a winged petiole. Peduncles elongated; pedicels short. Calyx-teeth deltoid. Corolla-limb smaller, deeper yellow; throat plicate (with folds).—Distrib.: Throughout Europe; rare and not typical in the Mediterranean region.

Group II. Aleuritia.—Leaves often mealy beneath, revolute when young. Calyx not ribbed. Flowers lilac.

4. *P. farinosa*, Linnæus.—Leaves small, crenulate, mealy below. Pedicels and calyx also mealy. Calyx-tube campanulate; teeth as long as the tube. Corolla-tube short.—Distrib.: Northern and Central Europe, mountains of Spain.

5. *P. stricta*, Hornemann.—Differs from farinosa by leaves not mealy beneath, pedicels and calyx not mealy, flowers fewer.—Distrib.: Mountains of Scandinavia and Northern Russia.

6. *P. sibirica*, Jacquin, var. *finmarchica*, Jacquin.—Leaves broader than in farinosa, entire, not mealy beneath. Pedicels longer. Calyx-tube oblong; teeth much shorter than the tube. Corolla-tube short. Flowers few.—Distrib.: Mountains of Scandinavia. The type known in Siberia only.

7. *P. frondosa*, Janka.—Leaves large, thin, not mealy beneath. Calyx-tube campanulate; teeth lanceolate-deltoid, as long as the tube. Corolla-tube short.—Distrib.: Mountains of Thrace. Very rare.

8. *P. longiflora*, Allioni.—Leaf like that of farinosa, usually mealy beneath. Calyx longer, both tube and teeth. Corolla-tube 1 inch or more long. Corolla-limb ½—¾ inch in diameter.—Distrib.: Mountains of Central Europe.

GROUP III. AURICULASTRA.—Young leaves involute. Calyx short, both tube and teeth.

True Auriculastra.—Leaves, calyx and pedicels not viscose.

9. *P. Auricula*, Linnæus.—Leaves large, entire or minutely toothed. Under side of leaves, pedicels and calyx mealy. Bracts small. Flower pale yellow.—Distrib.: Mountains of Central Europe.

10. *P. Palinuri*, Petagna.—Differs mainly from the large forms of P. Auricula by its constantly inciso-crenate leaves and larger foliaceous bracts. Flower pale yellow.—Distrib.: Promontory of Palinurus, Naples.

11. *P. marginata*, Curtis.—Much dwarfer than Auricula, with strongly inciso-crenate leaves with a white mealy margin. Flowers fewer, lilac.—Distrib.: Alps of Dauphiné and Piedmont.

12. *P. carniolica*, Jacquin.—Leaves oblong, thin, entire, not at all mealy. Flowers lilac.—Distrib.: Alps of Austria and Lombardy.

Erythrodosa.—Leaves, pedicels and calyx viscose.

13. *P. viscosa*, Villars.—Leaves obovate, strongly inciso-crenate. Pedicels twice as long as calyx. Calyx-teeth nearly as long as the tube. Flowers few or many, lilac.—Distrib.: Pyrenees and mountains of Central Europe. Many varieties (villosa, Wulfenius, latifolia, Lapeyrouse, &c.).

14. *P. daonensis*, Leybold.—Differs from dwarf few-flowered forms of viscosa in its narrower leaves, shorter pedicels and much smaller calyx, with very small obtuse teeth.—Distrib.: Granitic Alps of Switzerland and Austria.

Group IV.—ARTHRITICA.—Young leaves involute; calyx long; tube cylindrical or infundibuliform. Flowers always lilac.

Corolla lobes shallowly bifid.

15. *P. calycina*, Duby.—Leaves large, entire, acute, with a distinct white mealy edge. Bracts large, linear. Calyx $\frac{1}{2}$ inch long; teeth lanceolate, as long as tube.—Distrib.: Alps of Lombardy.

16. *P. spectabilis*, Trattinick.—Leaves large, entire, obtuse or subacute, with an indistinct pale edge. Bracts smaller than in the last. Calyx $\frac{1}{4}$—$\frac{1}{3}$ inch long; teeth much shorter than the tube.—Distrib.: Alps of Central Europe; several varieties; was included by Linnæus under integrifolia.

17. *P. integrifolia*, Linnæus, *ex parte*.—Dwarfer than spectabilis, with smaller leaves and only 1—3 flowers.—Distrib.: Pyrenees and mountains of Switzerland and Lombardy.

18. *P. Allioni*, Loiseleur.—Dwarf, 1—2 flowered, with very short peduncle and pedicels. Leaves obovate, very obtuse, subentire, viscose.—Distrib.: Alps of Piedmont, very rare; and a geographical variety (P. tyrolensis, Schott) in the Tyrol.

Corolla-lobes deeply bifid.

19. *P. minima*, Linnæus.—Very dwarf; leaves small, obtuse, sharply toothed, not viscose; flowers 1—2; peduncle and pedicels both very short.—Distrib.: Mountains of Switzerland, North Italy, Austria, and Turkey.

20. *P. glutinosa*, Wulfen.—Leaves obtuse, denticulate, viscose. Flowers many, in a dense umbel, with an elongated peduncle, and large oblong obtuse bracts; pedicels absent.—Distrib.: Mountains of the Engadine, Lombardy, and Austria.—*J. G. Baker.*

It was then agreed that in order to save time, and give longer opportunity for discussion, that Dr. Masters' paper be taken as read. The paper itself is appended:—

On the Root-Structure and Mode of Growth of Primulaceæ in Relation to Cultivation.[*]

By Dr. Maxwell T. Masters, F.R.S.

For practical purposes it is very serviceable to consider a living plant in the light of a piece of mechanism, constructed and put together to do certain work as efficiently and as economically as circumstances permit. The comparison may serve our purpose without it being necessary to point out where it fails, and wherein lies the great difference between a living machine begotten of its predecessors, and which had the like structure and endowments with itself, self-sustaining, supplying its own power from sun and air and water, built up and adapted by its own energy, and one constructed by the art of man, dependent on artificial means for its support and its power, and with no innate faculty of self-adjustment to varying circumstances. Availing ourselves, therefore, of the comparison we may proceed to discuss what it is our machine is called on to do, how it is enabled by its conformation to do what is required of it, and, incidentally, how we as cultivators may help or mar its action. The Primulaceæ will afford us as good illustrations of these matters as any other family of plants. It is the group which is expressly selected to furnish a text for these remarks, and which, moreover, are, as prescribed, to be limited to a part only of the machine —the root. It is permissible, however, on such an occasion to use the term "root" in the broad sense in which it is usually employed by gardeners, and not in the more accurate and strictly limited sense in which it is made use of by physiologists.

THE REQUIREMENTS.

What, then, is our machine—the root—called on to do? In all cases to lay hold of the soil and secure the plant mechanically. How it does this will be sufficiently though incidentally illustrated later on, and is not a subject on which we as cultivators need linger long. The plants we have now to deal with may be lifted out of the ground by frost, but they are hardly likely to be washed away by floods or uprooted by winds. To pot firmly and press the crown firmly into the soil in transplanting are lessons which common experience teaches, lessons which the conformation of the root, to be presently noted, do but accentuate.

Another universal duty imposed on the root is to feed the plant. There is soil-food and there is air-food. The leaves, stimulated by light and heat, collect and transform the one; the roots, influenced by heat, absorb and digest the other. How they do these things is beyond the purpose of this paper to explain, but reference to any modern botanical text-book, and in particular to the truly marvellous revelations contained in the chapters on root movements in Darwin's "The Power of Movement in Plants," will supply the information and affords indication of the processes of absorption, of solution, of fermentation, of transformation, which, with or without the agency of minute Bacterian organisms, constitute each root-tip, each root-hair, a laboratory and a workshop. Each root-tip, each root-hair, moreover, is as sensitive as a nerve, not only responding to a touch, but transmitting impressions from the spot touched to adjoining cells. It is as mobile as a muscle, turning towards what is useful to it, bending away from what is noxious or obstructive, threading its way through the soil, and adapting itself to circumstances as if it really possessed intelligence. It acts like the brain, says Darwin; and truly as a sentient organ, receiving and transmitting impressions and directing the course of growth and movement, it would be hard to say wherein its inferiority to the nervous system of the lower animals consists.*

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[*] For the communication of numerous specimens illustrative of these notes I am specially indebted to Mr. Dewar, of the Royal Gardens, Kew; Mr. Barron, of Chiswick; Mr. Correvon, of Geneva; Mr. Douglas, and other friends. For some of the drawings I have to thank Mr. Sandgren, lately of the Royal Gardens, Kew. For observations on the development and conformation of the flower of Primulaceæ, *see* Masters, in *Transactions of the Linnæan Society*, second ser., vol. 1., June 7, 1877, p. 285, tab. 38—41.

In the case of annual plants, which live their life within the compass of a few weeks or months, there is little else for the root to do than to secure the plant in the ground and to go in search of food and turn it to account when found.

But in the case of perennial plants, such as most of our Primulaceæ, another duty becomes incumbent—that of providing a store-place for water and for food. The food so stored, principally starch and allied substances, is not absorbed directly by the root and packed away, but, partly by root-action and soil-food, partly by leaf-action and air-food, is manufactured in the leaves and afterwards transferred and deposited in the root or in the root-stock.

A similar formation of starch takes place in annual plants, but the starch is used up in the process of growth, or stored in the seed to be turned to use by the seedling plant when it begins life on its own account. In any case the storage requirements of an annual are small in comparison with those of a perennial. To ascertain how and in what manner the food is obtained, transformed, stored, and employed, is surely to put ourselves in possession of information, of any that could be named, the most important for cultural purposes.

Another phase of work which it falls to the lot of the root (*sensu latiori*) to achieve is that of propagation, and by observing how this is effected spontaneously we may surely obtain some useful hints for our own artificial procedures.

Such, then, in very general terms, is the nature of the work to be done; such, in merest outline, are the requirements of the case.

THE MECHANISM.

In the following remarks it is proposed to give a few illustrations of the machinery by means of which the work just alluded to is done, for while the work is in all cases the same, the machinery by which that work is accomplished is manifold in detail.

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* Since this paper was written, further additions to the marvels of root-action have been made known by MM. Van Tieghem and Douliot (*see* Bulletin Soc. Botan. France, 1886, p. 252). Roots, as is well-known to botanists usually originate in the deeper tissues of the plant, and hitherto they have been considered to force their way outward by mechanical pressure during growth. The two Botanists above-mentioned have, however, ascertained that the growing root-cells secrete some fluid which enables them to soften, ultimately dissolve, feed on and digest the cells with which they come in contact, much in the same way that the same roots, when they have accomplished their escape from the inner substance of the plant, fed on the particles of soil with which they come in contact. Messrs. Van Tieghem's and Douliot's observations were largely made in Primroses of various kinds.

ANNUALS.

Very few cultivated Primulaceæ come under this head. Some of the Androsaces and Anagallis are annuals; but speaking from a cultivator's point of view, they might be passed over if it were not for one circumstance, frequently ignored or overlooked, though one of great importance—the fact that seedling plants even of those species destined to be perennial are, to all practical intents, annuals. Barring the slender resources stored up in the seed, the seedling plants have little store to draw upon, and thus, like the annuals, they must have good food within easy reach, and be provided with rapid means of utilizing it, else they wither away.*

Centunculus minimus.—A weed no cultivator would bestow a thought upon, unless it were to compass its destruction, may, nevertheless, serve as a useful illustration (fig. 8). It sends down into the soil a slender tap-root, which speedily ramifies, just below the surface, branches and branches again till it, as it were, invades a considerable area of soil. There are no great "hold-fast" roots—none are needed, but on the other hand, there

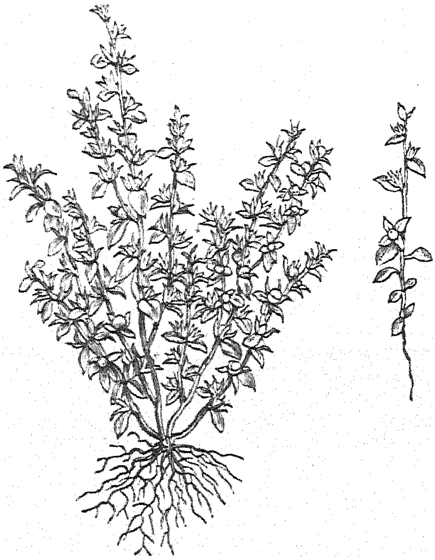

FIG. 8.—CENTUNCULUS MINIMUS.
Adult plant to the left; germinating plant to right, with branched radicle, sessile cotyledons, and single stem.

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* "Some [seed] fell upon stony places, where they had not much earth: and forthwith they sprung up, because they had no deepness of earth: and when the sun was up they were scorched: and because they had not root, they withered away."—*Matthew* xiii. 5, 6.

is a great multiplication of small fibres, and a consequent extension of absorbent surface. Notice, too, that there is no caulicle; in other words, the radicle comes straight away from beneath the two cotyledons without there being any perceptible internode (stalk between the base of the seed leaves and the top of the root). In a seedling Primrose may generally be observed the radicle, giving off branches, then an erect cylindrical portion bearing the cotyledons or seed-leaves, but sometimes reduced to very small dimensions; this is the caulicle or tigellum. Above the two seed leaves is the plumule, consisting of the first leaf or leaves above the cotyledons. In these seedlings it is curious to see how, whilst the primary roots descend vertically, the secondary ones pass off horizontally (figs. 9, 10).

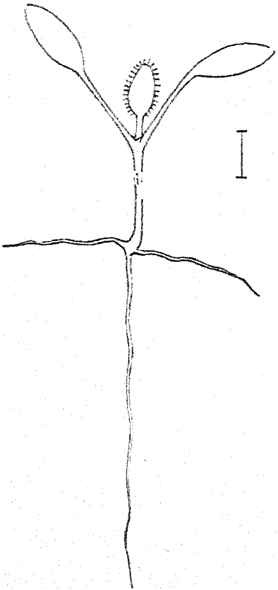

FIG. 9.—PRIMULA GERANIFOLIA, Showing radicle, lateral roots spreading horizontally, caulicle, and stalked cotyledons.

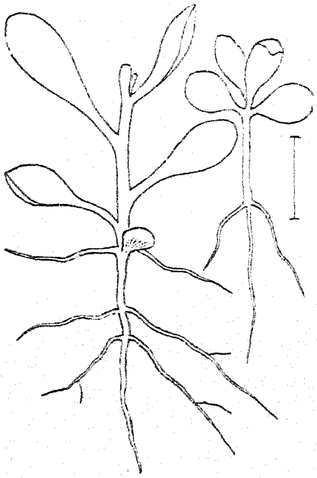

FIG. 10.—PRIMULA FLORIBUNDA; SEEDLING PLANTS. The line to the right indicates the real size.

It is quite clear that the seed in Centunculus was not buried deeply, for the caulicle is a minus quantity. It is clear also the soil for such a plant should be light, open, rich, well drained. Contrast this with the germination of *Primula reticulata*, in which not only is the tigellum very long, but the two cotyledons are also raised on long, erect, or ascending stalks,

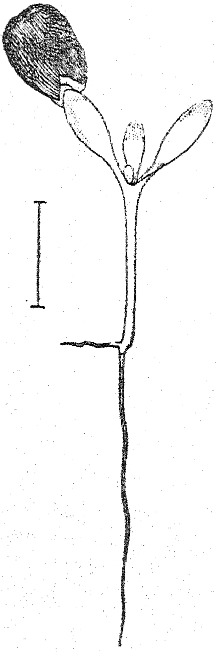

FIG. 11.—PRIMULA KINGII,

Showing radicle, a lateral horizontal rootlet, the caulicle, and two cotyledons, one just disengaging itself from the seed. The line to the left shows the real size.

as if the plant grew in the clefts of the rocks, and had a long distance to thrust its seed-leaves into the light and air (fig. 12). The requirements of seedlings are, it need hardly be said, of the same character. We all know the care that is requisite to secure the germination and the rearing of these delicate organisms.

"In the morning sow thy seed, and in the evening withhold not thine hand."
Eccles. xi. 6.

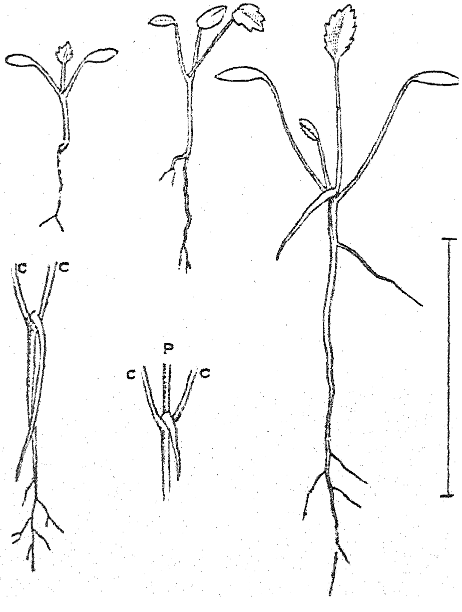

FIG. 12.—GERMINATION OF PRIMULA RETICULATA,

Showing radicle, caulicle, long-stalked cotyledon, C, plumule, P, and an adventitious root springing from the stem above and between the cotyledons, an indication of the speedy decay of the primary root.

The mode of growth of the Androsaces is similar. They are, it is true, for the most part not annuals, but in their root-growth some of them (the cæspitose species) follow the mode of annuals. The seedling plants have roots of the annual character, with a long radicle giving off numerous branches (fig. 13).

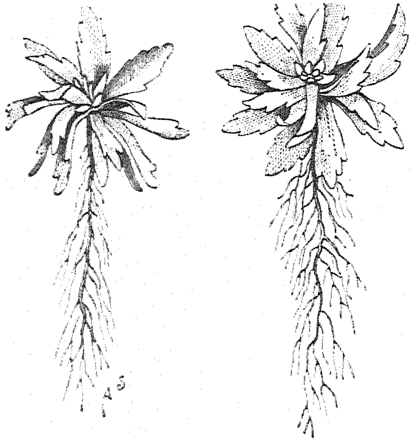

FIG. 13.—ANDROSACE ELONGATA.

The adult plant has little provision for storage, but consists of a dense tuft of leaves, from the axils of some of which proceed long slender runners, like those of a Strawberry, and which bear at their ends a tuft of leaves like the parent from which they sprung. From the under-surface of this tuft proceed roots like those of the Centunculus, and, like them, destined not for any lengthened use, but only for a temporary purpose; no long time indeed elapses ere the tuft throws out new runners, and thus repeats in another generation the process of its own genesis (figs. 14, 15). It would seem from this peculiar mode of

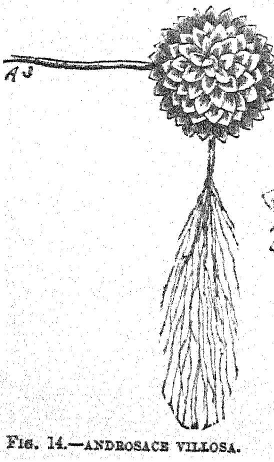

FIG. 14.—ANDROSACE VILLOSA.

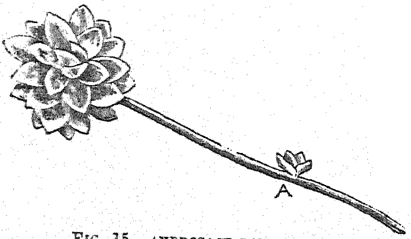

FIG. 15.—ANDROSACE LANUGINOSA,
With a side-bud produced on the runner.
If pegged down roots will be produced from
this part.

growth that the Androsaces speedily exhaust the area in which their roots spread, and having done so, haste—

> " To-morrow to fresh woods and pastures new."
>
> Milton, *Lycidas*, t. 193.

Whether this is not an indication of value to the cultivator I leave to others who have had more experience to decide. My own want of success with these plants cannot in fairness be attributed only to neglect of that indication.

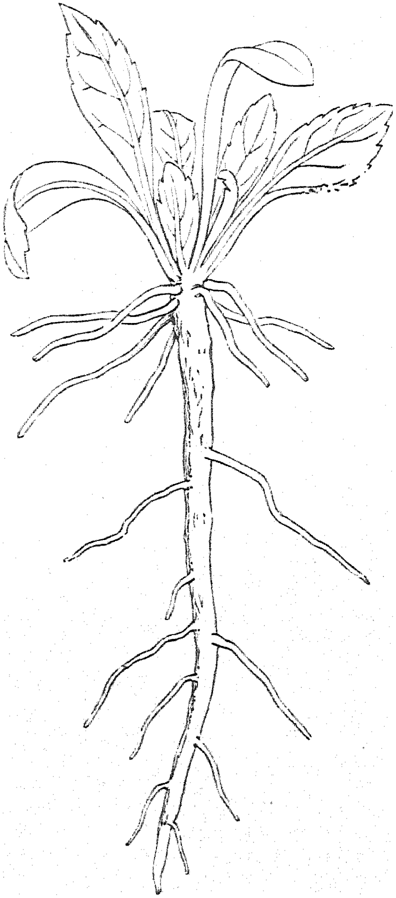

FIG. 16.—PRIMULA CAPITATA,
Showing long rhizome giving off numerous horizontal branches.

PERENNIALS.

In these, as for annuals, there is need for daily supplies during the growing period, and further, there is the necessity for replenishing the stores. It is necessary, therefore, to consider the root-growth of these plants from two points of view—that of food-collecting and that of food-storage.

The actual absorption of water is, of course, effected in the same way in the roots of perennials as in those of annuals, but the perennial habit allows more time wherein to work, and frequently secures a wider root-range than is possible in an annual. In a perennial, *cæteris paribus*, the roots can travel further, or penetrate deeper in search of food, than in the case of an annual.

In an annual the roots, as gardeners say, "keep at home," and there is not much necessity for a system of conduits to convey the water from its source to the stem; but in perennials it often happens that the best food supply is at some considerable distance from the stem, and the consequence is that the fibrous roots collect the liquid from the feeding-ground, and convey it in so many conduits to the stem. The thicker root-fibres have, as every one knows, little or no power of absorption, that faculty being mostly limited to the thinnest extremities of the root-fibres, and to the root-hairs (where present). Of course the number, length, and degree of branching of the roots depend very greatly on the physical nature of the soil in which the plant happens to be growing—

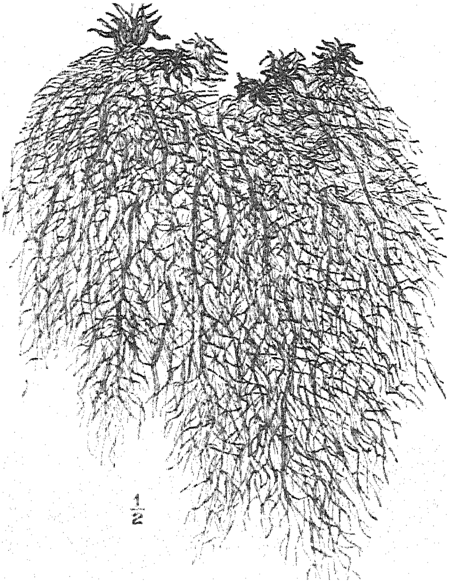

FIG. 17.—ROOT SYSTEM OF PRIMULA ROSEA.

"Pinguibus hæ terris habiles, levioribus illæ."

But when due allowance is made for these circumstances each plant has more or less its own distinct character. The roots of most species of Primula, for instance, are very different from those of Androsace, and indicate different requirements. [See Irmisch, in *Journ. Hort. Soc. London*, vol. viii. (1853), p. 217.] But even in the same genus we get variations in this respect. In the common Primrose and Polyanthus, in *P. cashmiriana*, *P. capitata* (fig. 16, p. 243), *P. amœna*, *P. Auricula*, *P. denticulata*, *P. nivalis*, *P. longiflora*, *P. cortusoides*, &c., the roots are generally rather thick and fleshy, descending more or less

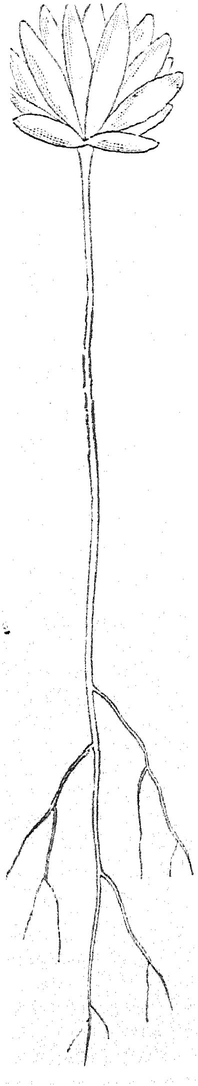

FIG. 18.—GERMINATION OF ANDROSACE,
Showing radicle, caulicle, sessile cotyledons, and primary tuft of leaves.

vertically for some little distance without branching, and then giving off short nearly horizontal branches with few root-hairs (except in P. Auricula in which, in some cases at least, the roots are covered with a velvety coat of hairs. Such roots are not surface-feeders, but are capable of penetrating to a considerable depth in search of food, while their succulent habit and reserve store of water obviate the necessity for that dense network of fibrous roots that other species present. *Primula rosea* (fig. 17, p. 244), *P. Kaufmanniana*, *P. involucrata*, and *Cortusa Matthioli*, afford instances of this densely matted and comparatively superficial root development. They have few if any large root or conduit fibres; but, on the contrary, an intricate mass of fine fibrous roots, penetrating in every direction, and availing themselves, as it were, of every scrap of soil within reach. Surely we have here an indication of the necessity in cultivation of supplying these plants with ample depth and breadth of light, rich, moist, not to say wet soil. The utility of a mulch in hot dry weather is also indicated as a means of preventing the drying up of the surface roots.

In some of the Androsaces we find provision for keeping the roots moist and free from the risk of drought. In seedling plants of *A. elongata*, for instance, the caulicle is very long and the slender radicle descends vertically for a long distance without branching, and then gives off near its tip a leash of much branched fine filaments (fig. 13, p. 242).

In *Soldanella* we have a tuft of rather thick fibres, which descend vertically into the soil, and are unbranched till near the points, where they give off numerous relatively short horizontal fibres.

STORAGE AND REST.

In perennials we have specially to consider the arrangements for storage of food in convenient places for use when required, and the modifications of structure associated with the periodic alternations of active growth and relative rest. Of a Primrose, whether "by a river's brim," or elsewhere, whether a yellow Primrose or one of other hue, it may be said that at one season its constant care is to increase its store, while at another its aim is to make all snug for winter. Of course the Primrose is not peculiar in these matters, but we may perchance profit somewhat if we make use of it as an illustration of general application.

THE ROOTSTOCK.

The body which emits roots on the one side or beneath and throws up leaves and flowers on the other is the "rhizome," or rootstock. It is usually subterranean, and so gets called a root, but inasmuch as it produces leaves, buds, and offsets, and has the internal structure of a stem, botanists will not admit its claim to be considered a root, for a root, under ordinary circumstances (*exceptis prætermissis*), does none of these things. It is a development of the plumule or of the caulicle, or of both together. Usually it is more or less horizontal in its direction, as in the Primrose, in other cases it is vertical, as in the Auricula, where it thrusts itself above ground, and gives off buds or offsets in such a way that no one can mistake it for a root. Horizontal or erect, it throws down feeding-roots into the soil, and these roots are usually fleshy, serving, indeed, not only as feeders, but as storeplaces as well, thus sharing the office of the stock itself. At the free end of the stock is a bud, or a cluster of buds, by means of which the plant grows (figs. 19, 25). From these buds up spring the leaves and the flowers.

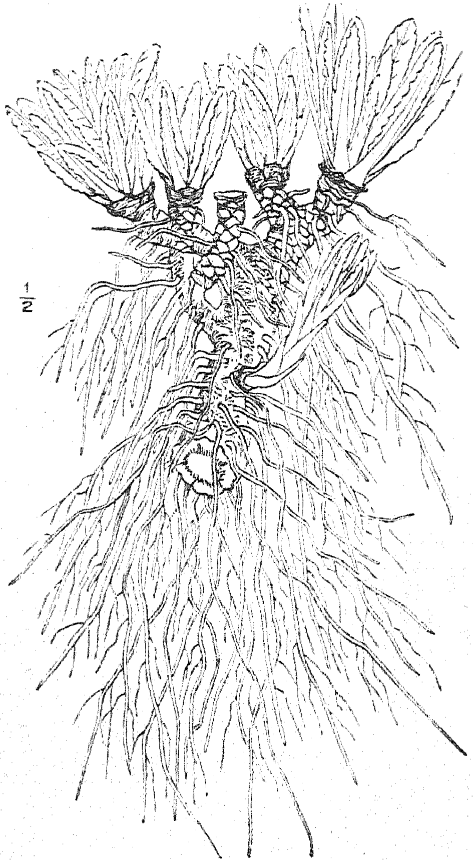

FIG. 19.—POLYANTHUS,

Showing branching rootstock with numerous spreading roots and terminal and lateral buds.

POLARITY OF THE STOCK.

Owing to this position of the buds the stock grows at one end, and extends and pushes itself into new territory, while the other end of the stock, having yielded up its store of water and starch to the growing bud, gradually decays.

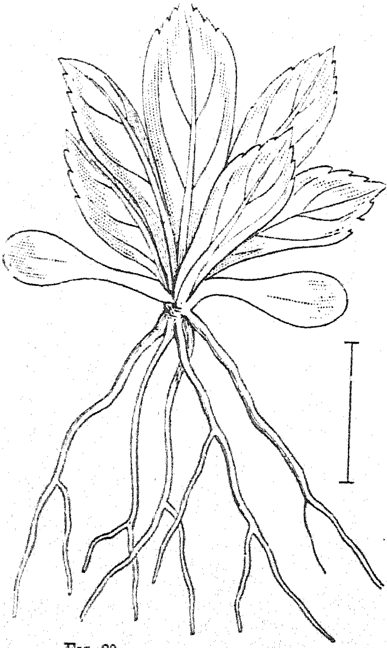

FIG. 20.—PRIMULA VERTICILLATA,
Showing the branching and spreading secondary roots (the original radicle has already perished), the two seed-leaves and the tufted many-leaved plumule.

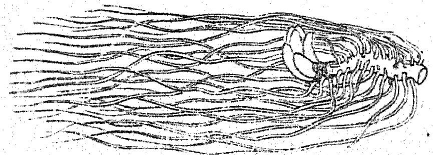

FIG. 21.—RHIZOME OF PRIMULA CORTUSOIDES VAR. AMŒNA.
HALF REAL SIZE.

Thus the plant effects very quietly and gradually a change of residence—an indication of the desirability of occasional transplantation. This progressive decay at one end suggested to old Auricula growers the "removal of the end of the Carrot," and there was nothing to be said against the process provided their surgery was confined to dead portion only, and did not include the healthy and (potentially) active roots also. In such a case the stock would be put to the trouble of making new roots, which, to say the truth, it would not fail to do speedily under propititious circumstances.

The progressive growth at one end associated with progressive decay at the other, is a very marked feature in Primulaceæ. Moreover, it is often manifested from the earliest period. The root apparatus of the seedling plant seems destined for the use of the seedling only (which is thus, as before noticed, practically an annual), and when the plumule developes gradually into a permanent stem with its leaves and potential flowers, new roots are thrust out from the plumule, as may be seen in the illustration of *Primula reticulata* (fig. 12), *P. elatior* (fig. 22), and in *P. verticillata* (fig. 20).

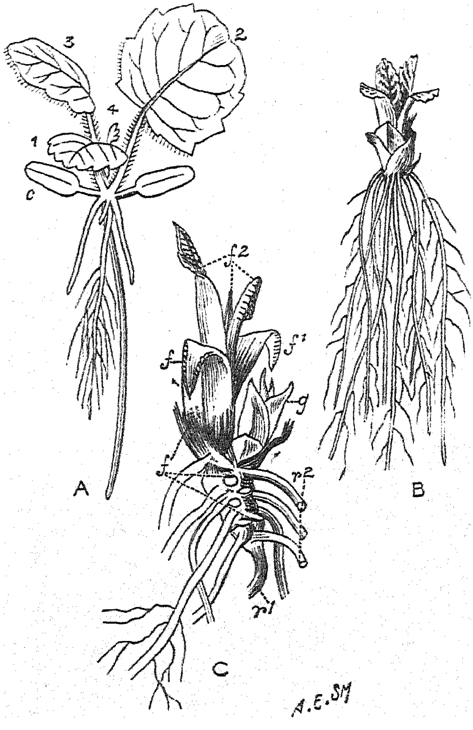

FIG. 22.—PRIMULA ELATIOR.

A, Seedling plant; *c*, Stalked cotyledon at the top of the caulicle. from which also protrude numerous roots; 1, 2, 3, 4, Plumulary leaves. B, Winter bud arising from the decay of the stock and the detachment of the bud. C, the same, enlarged; *r* 1, *r* 2, Roots; *f* 1, 2, Leaves; *g*, Side buds (after Warming).

In *Primula sinensis*, however, the primary root does not decay, but forms a permanent tap root, which thickens as it grows, like the woody stem, and sheds its bark in consequence.

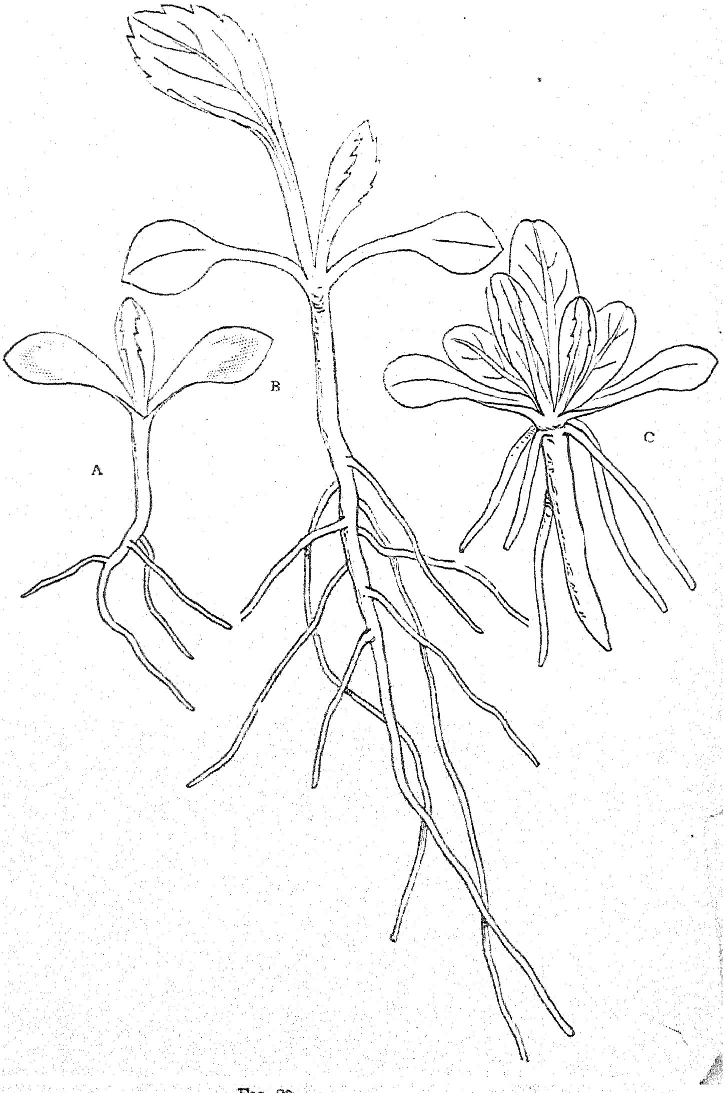

FIG. 23.—PRIMULA VULGARIS.

A, Shows the radicle tapering downwards, the cylindrical caulicle above the radicle and supporting the two cotyledons, between which is seen the first leaf with its revolute edges; B, Further stage of the same; the line by the side indicates the real size; C, Stage still further advanced; roots are being given off from the base of the plumule.

The development of the tufted stem from the plumule is well exemplified in the case of the Cowslip, as pointed out to me some years since by Mr. Holland. The seedling plant germinates in the usual way, but after a time the weight of the rapidly-growing plumule causes the caulicle to bend downwards and become more or less horizontal. Adventitious roots are then thrown out from the base of the plumule, the caulicle and primary root gradually decay, and thus the young plant becomes independent. (Henfrey's "Elementary Course of Botany," Ed. 4, p. 654.)

PROTECTION.

One other provision with reference to the rootstock may here be noted, and that is the manner in which in most species, notably in *P. latifolia* *P. graveolens*, *P. Palinuri*, the deeply descending rhizome is protected from loss of heat, as also from mechanical injury, by the dense covering afforded by the remains of the old leaves. Contrast this state of things with the way in which Auriculas thrust themselves out of the ground, their rootstocks showing little or no trace of the leaves beyond the scar, which indicates the place whence they have fallen. It would be interesting to ascertain whether these peculiarities in the Auricula may not be connected with the development of offsets (buds) from the side of the rhizome (fig. 24).

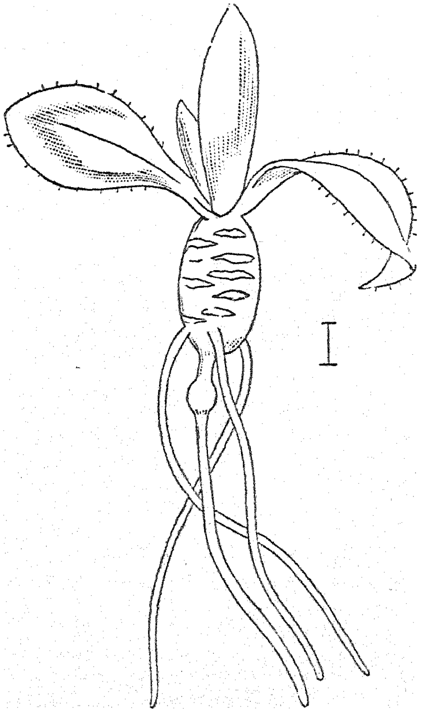

FIG. 24.—AURICULA.
Vertical rhizome; the scars indicate the places whence the leaves have fallen.

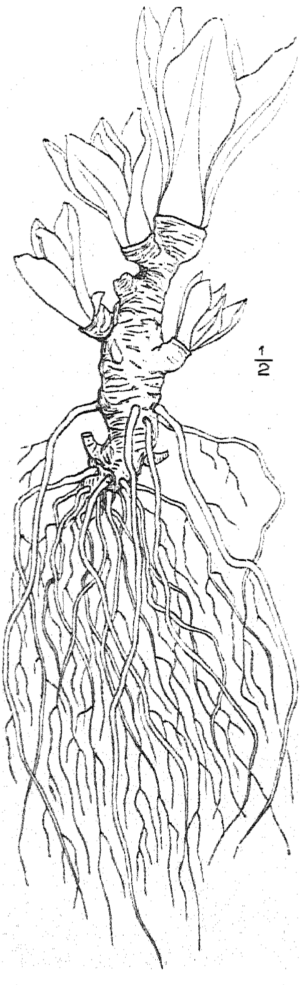

FIG. 25.—ALPINE AURICULA,

With vertical rootstock pushing above-ground and devoid of leaf-scales.

TUBERS.

The tuber of a Cyclamen (a development originally from the caulicle or tigellum) is essentially the same as the rootstock, differing only in its more or less globular form. It throws off feeding roots from its base or its sides, and it forms a bud or buds at the top. Its fleshy tissue is laden with starch and building material for new growth.

WINTER BUDS.

In *Primula rosea*, *P. involucrata*, *P. farinosa*, and *P. rotundifolia* (herbarium spec.), and probably in many other species, we find what may be termed winter buds. In point of fact the stock in these cases decays away almost entirely, leaving only the buds which form at its extremity, or at the ends of its branches. These buds are made of dilated leaf-stalks densely packed one over the other, like the similar parts in a "head of Celery." They are furnished at the base with numerous root-fibres, very fleshy in *P. involucrata* (fig. 26), fibrous in *P. rosea*, and which serve to supply sufficient moisture in the dry season. Carefully stowed away in the centre of the leaves is the inflorescence, whose tiny pearl-like flowers may be seen securely nestling, even in mid-winter, beneath their protective wraps exactly as in the case of bulbs, or Cabbages in which the leaves "turn in" well. *P. denticulata* is not so fortunate. In this plant the leaves spread widely and do not close up to cover the inflorescence, the consequence of which is the latter is apt to be

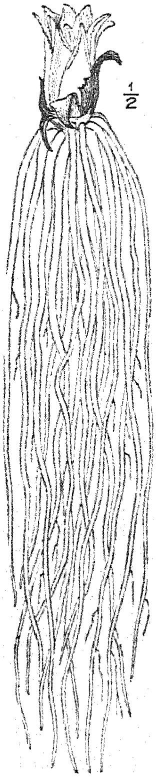

FIG. 26.—WINTER BUD OF PRIMULA INVOLUCRATA, WITH THICK VERTICALLY DESCENDING ROOT-FIBRES.

stimulated by the capricious and unseasonable gleams of sun that we get in some winters, and bursts into bloom at a time when "a frost, a killing frost," is only too likely to damage the blossoms, or, if this does not happen, the flowers are liable to be rotted with wet or snow. Of course this is, to some extent, prevented by laying a Fir branch or other protection over the plant.

The formation of a thick rootstock, of tubers, of fleshy roots, or of large winter buds, may all be taken as indicative that the plant is thrifty enough to lay by a provision for the future, and, moreover, that it adapts itself to falling temperature and other untoward circumstances, and goes to rest. To afford such rest in our uncertain climate is, as all gardeners know, occasionally a difficult matter. In my own experience, which, if personally small, is vicariously large, I find much virtue in a covering of Fern, straw, or a Fir branch.

The foregoing remarks apply to plants growing in the open air, or with no other protection than a cold frame in winter. Under glass the requirements are somewhat different, and the conditions likewise. The plant is grown for some special purpose, and the gardener considers not so much the natural "habit" of the plant under normal circumstances, and the way in which he may promote *its* welfare, as the manner in which he can induce it to adapt itself to *his* requirements, and the conditions *he* offers. He may even find it requisite or advantageous to invert the natural course of things—to force when the plant, left to itself, would go to rest, to check growth when the natural tendency would be to progress. For instance, the formation of the Cyclamen tuber is an indication that the plant, under natural circumstances, has a season of rest; and before Cyclamen culture had reached such a pitch of perfection as it has now attained, growers were wont to give the tubers an enforced rest by drying them off. Now, that practice is quite reversed; and that such an amount of rest as the old growers gave the plant is not necessary under artificial conditions is shown by the fact that the foliage of the Cyclamen is persistent, and no deficiency of food to sustain this prolonged season of growth is to be feared, for food the gardener can give freely and at times when Nature herself might close her stores. This justifies the treatment of the Cyclamen as if it were a bulb with evergreen foliage.

Servile imitation of Nature—such imitation, that is, as we can compass!—is, to say the least, not very much better than mechanical routine. The wisdom of the gardener is shown first in his knowledge of plants and their ways, and next in the skill and judgment which he brings to bear in inducing or helping the plant to adapt itself to unnatural conditions, and to the fulfilment of artificial requirements. Whether from the point of view of the physiologist, or from that of the cultivator, a thorough study of the life-history of plants is absolutely essential to complete success. It is not given to any to reach the highest standard, but it is a satisfaction to know that every step in the way is a real gain—a link in the chain of true progress—a progress which, at least as far as the community at large is concerned, knows no counter-march.*

roses, and more especially those new Indian Primroses of which we have not had much experience, and they are so important that I do not like to let the opportunity go by of asking one or two questions. The plant having died down, as we know most of the Himalayan Primulas do in the autumn-time, a bell-glass may be put over it to protect it. That may or may not be necessary. I dare say it will be found, when we come to experience, that it is quite sufficient to have a little leaf-covering to protect it through our winter, and if the plant has done this for itself in the way mentioned by Dr. Masters, it is a very good hint. So far as the Indian Primroses go I take it that what they want is the power to help themselves to water whenever they like, not to wait for our watering, but to put them in such a place that they can help themselves to water whenever they choose. That is not always easy to combine with safety to the crown of the plant in winter. We want to see all these new Indian Primulas grown to the perfection to which I have not the least doubt we are coming. I should like to know what Dr. Masters has to tell us with regard to the root structure of species growing in boggy ground where they are frozen. Mr. Elwes has seen *Primula sikkimensis*, and he tells me the finest he ever saw were growing on the banks of a stream; that they had three feet or more of roots which went down into the flowing stream. We must remember that these things grow under complete protection by the snow in winter, and when the snow is melted they are subjected to the full blaze of the sun and an abundance of water from the melted snows above. We cannot give them that condition of things in this country, because what we call snow is slush, and does more harm than good. It is well to remember what nature has done for them in their own country, and give them as near that condition of growth as we possibly can. I am confident with regard to giving them a great abundance of water. Most undoubtedly it does suit those of the Himalayan species with which we are best acquainted, therefore I think it is very probable it will be found to suit many of the others, too. I should like to ask Dr. Masters with regard to the early management of this young plant, because I think he can tell us something about the root structure in the early stage which may save some of our favourites before they have become strong enough to plant out.

Dr. Masters: With reference to these bog-loving Primroses, I have found that the roots are almost invariably extremely divided, or if not, then that they are provided with a large number of somewhat fleshy undivided roots. [Dr. Masters exhibited a specimen to show the great difference that may exist between two different plants growing in the same soil. The one was a clover with a long, relatively unbranched, woody root, and the other a grass, with a dense mass of fine roots. Both were taken out of the same chink of rock, feeding on the same food, and yet see how different the means by which they secure the food.] To sum up, as far as I know, there are two principal types of roots in these boggy plants, one extremely fibrous, which begins to form new fibres when the spring comes, and not till then, the roots being dormant in winter; the other, with very thick, fleshy fibres, which probably remain active during the winter. In the latter case, however, it does not so much matter whether there is any water just at hand, because they have it stored up in their own tissues. In my paper I have alluded to the periodicity in the action of the root, and shown how sometimes it is quiet and at other times at work, and how it is necessary to consider these plants as having more or less of annual character for the purposes of cultivation. Whether a plant lives for ten or for a hundred years, it is often necessary to consider it in its growing stage as if it were only an annual plant. The plant comes to bloom at certain definite times and then rests, therefore to all intents and purposes it is an annual and you must so treat it.

Mr. Jenkins: I should like to add one or two remarks about the Primulas of the Himalayas, and with regard to their culture. I have been a somewhat successful cultivator of some of them for many years, and I think I can fully endorse the Chairman's remarks and Dr. Masters's observations with regard to many of them. With regard to *P. sikkimensis*, I think the whole secret of its culture is deep, boggy soil and abundance of water. With regard to the remarks of the Chairman about sending down roots to a great depth, that I can endorse from my own experience. As to those that are covered with snows for a large part of the year, I think we can only imitate that condition by one thing, that is covering with coal ashes or cocoa-nut fibre during their resting period, especially in the case of the deciduous species, which if so treated will suffer less from the frequent atmospheric changes that occur in the lowlands; but as soon as the resting period is over, I think we should deluge them with water as far as lies in our power. With regard to the soils, I consider that it is not so much a question of the nature of the soils in many species as it is of the altitude in which they are found in their native habitats. In my own experience, I have found *Primula minima* has succeeded very well under most opposite conditions to those which it grows in its native home. In our English lowland homes it is one of the most difficult plants to grow, but in the higher grounds of Scotland we find it growing—I might almost use the word—rampantly. It grows most luxuriantly; it flowers freely, and in fact from a remark which I heard from a friend of mine recently, it is planted in ordinary soil and grows without any trouble whatever. That is a point we should give some consideration to. Then, again, I would mention *P. capitata*. That is one of the so-called "miffy" Primulas, but in Mr. Dod's garden, at Malpas, it thrives wonderfully. I think Mr. Dod has confirmed my remarks by his comments on some of the species in some of the horticultural papers. That species in some cases is the most fastidious to deal with—it dies off without any warning. I have had great difficulty in overcoming this tendency. That many plants of this species go off in this remarkable manner has been a subject of consideration and lament to a great many lovers of Primulas, and it does not bear out the view that many people have of the soil being all in all as regards the culture of these "miffy" species of Primula. I think for my own part, that altitude, and the thick covering which they get in winter during the resting period, have far more to do with the successful culture generally than all the soils we have in the lowlands. Then, of course, there is the melting of the snows in spring, which supplies them with abundant water during their growth. I do not think they get any special benefit from granitic or calcareous soils; at any rate, many of them do remarkably well on other soils. I think I have grown some twenty-five so-called species, and I have treated them with soils composed of about two-thirds of a rich maiden yellow loam, which I procured from Epsom Downs, one-third manure, and a very liberal dressing of sand, and leaf-soil if possible. Others that I thought required calcareous soils I supplied with old mortar rubbish or crushed bricks. In that way I have found my mode of culture successful, in nine cases out of every ten, with the so-called species of Primula. I think none of those are more difficult to manage in English gardens than the Fairy Primula (*P. minima*); I have flowered that species with unwonted success, and I must say that abundance of water, liberal drainage, and a dry, airy atmosphere during the winter, are the only means I have used to bring about success.

Mr. WILSON: I understood Mr. Jenkins to say he found *Primula capitata* a "miffy" Primula.

Mr. JENKINS: It is so regarded by some growers.

Mr. WILSON: I have grown a great many of them in many situations in my own garden, and I find the only conditions they require are to have rather a moist soil, shade and shelter.

The CHAIRMAN: Are we speaking of the same *capitata*?

Mr. WILSON: I am talking of the true *capitata*. Those are the only two conditions it requires. It lives through the winter and makes fine plants.

Mr. JENKINS: That bears out my remark. With regard to its being a "miffy" plant, I regard it as a good plant on certain soils, but I consider that it is more a question of altitude than of soils. It is not a question of being fed from below as much as altitude. Particular descriptions of soil may be supplied in any locality, but without necessarily ensuring success.

Mr. F. MOORE (Glasnevin): As to *Primula capitata*, Mr. Wilson has said that it requires shade and moisture to attain perfection. In Ireland I find the *Primula capitata* must have exposure to the sun, and the more sun it gets the richer it comes. I allude to the intense blue of its flowers, different from any other of that section. As to *P. sikkimensis* and *cachemiriana*, I can grow both these far better in a shady place and a moist soil. I have a *cachemiriana* now, with eight large heads, grown in the shade, perhaps larger than any I have seen in this Exhibition. I have a smaller plant of a similar colour grown in quite as moist a situation, in full exposure to the sun, and it is not nearly so good in its colour nor so vigorous in its growth. To get the glorious yellow colour in *P. sikkimensis*, which no other Primula possesses, you must grow it in moisture and shade. That is my experience, but I am sure there are many people here who have quite a contrary experience. I think we should try plants not only in various soils, but in various positions.

Mr. George Paul: I can very much endorse what has been said, but I do not think it is entirely a matter of shade or exposure, provided they have sufficient moisture at the root. They seem to want moisture even when growing in a natural bog; and if they are exposed to full sunlight, I do not think it matters a bit so long as they have a continuous supply of water. The one thing that has caused them to be unsuccessfully grown is the absence of a continuous supply of water. So far as my experience has gone, some species rejoice in a bog, in a full exposure to sunlight, but they must have a continuous supply of water. Your bog may be so formed that you can regulate the supply a little, and keep the channels open in winter, so that they may not be smothered with water. But there is no difficulty about that. I have tried a great many species, including also *P. minima*, and they seem to require the same conditions.

Mr. Jenkins: There is one remark I should like to add with regard to *P. sikkimensis*. I am strongly of opinion that it should be grown as a biennial to bring about the best results. In its native home it covers some acres of ground, the roots extend to a considerable extent, and we never get such good flowers after the second year. I am of opinion that it would well repay growing in a bog by itself, having the bog well under control, as Mr. Paul remarks, so that you can flood it or drain the water off at your pleasure, and so keep up a continual supply of water. In a deep bog with two feet of peat I have had it two feet six inches in height, which is very rarely excelled in this country. I believe that in its native home, the Sikkim Himalayas, it is about two feet high on the average. I think it is one of the most glorious of the Primulaceæ if we give it attention. Nothing can surpass the beautiful soft yellow, and the number of flowers, sometimes as many as 20 or 30 in one umbel, it produces under good culture.

Mr. Paul: I think the general impression among cultivators is that all these Himalayan Primroses are better treated as biennials.

Rev. C. Wolley Dod: The Himalayan Primroses are plants to which I am beginning to give attention. I came here more to learn than to speak, because I have not had much experience on the subject. Although we can imitate many of the natural conditions in the soil, we cannot possibly imitate the atmospheric conditions, and I think that will be the cause of failure in many of these Himalayan species. Speaking of the Himalayan species as a whole would be misleading, because the habits of the different species are so very various, and the results obtained so very different, that every one must be dealt with separately to do it justice. *P. sikkimensis* is a species with which I have been very successful. My plants grow usually two feet high in deep and moist soil, but I find they cannot stand even the poor sunlight that we get in Cheshire. Last year (1885) June 4th was an abnormally hot day, 82° in the shade, and in my climate all the plants that were exposed to the sun were burnt up completely, and failed to ripen seed in consequence. I find that a north aspect is desirable for them. As regards *P. rosea* I find it is prolific to any degree. A seedling flowering this year for the first time by next year will attain such development that by pulling it to pieces I can with the greatest ease make fifty plants of it. *Primula rosea* is one of those plants that we can increase from the stock; but with regard to some I find it very difficult to do so. I have never succeeded in dividing *P. sikkimensis* or *P. capitata* with any good results. Some, however, such as the species of the *denticulata* section, are so hardy and enduring that I find that all that is wanting is to encourage their flowering at the right time, which they do not do in our climate; they try to flower in winter; but if we take them about the beginning of autumn and cut the crown into bits, not dividing the separate crowns into crowns, but cutting each crown into half-a-dozen pieces with a knife, having a bit of top and a bit of root; then it has well developed, sufficient to carry them through the winter, and flower about April, when the climate is suitable for them. That remark applies to that section only. I have not tried it with any other. Then with regard to *P. purpurea*, of Royle, and some of the others, I find the tendency is for the crown to rot off in winter with excess of moisture in our climate. I suppose they feel the want of the covering of snow and the freezing up which they get in their native home. By Professor Foster's advice, I tried last autumn putting a bell-glass or an inverted pot over it night and day with very good results. I found some *Primula Stuartii* flower a second time, which they had never done before, and *Primula purpurea* had two grand heads of flowers, fifty upon each. I think if we can successfully deal with it, it will be a very desirable Primrose for cultivation. At the same time, I am sorry to say, I am afraid we must only deal with a great many of these Primroses as biennials. We have a great many in hand now. I think ten or twelve species have been sent to us by Dr. King and Dr. Duthie, and an abundant supply of seed, and all seem to have germinated well, with one exception, *Primula Elwesiana*. Then we have to proceed tentatively with these. My advice is to everyone—sow your seed as soon as you get it; rear as many seedlings as you can. When they are fit to deal with, plant them in as many kinds of soil and in as many positions as possible—facing north, facing south—try both rocky soil and boggy soil, and let us know where they do best. Gardening is a very practical pursuit, and I confess for my own part, I have a great deal more faith in practice than in theory in gardening. We may try to imitate natural conditions as much as we please, but there is always some one condition that we cannot imitate, and that is the atmospheric; and even as regards soils I cannot help suspecting that there may be some chemical qualities that cannot be shown by analysis. I find that attempts to imitate natural conditions generally fail if we grow them in that way, and that experience is by far a better rule. A person sees a plant doing remarkably well in my garden, and he says to me, "Dear me, you have that plant growing under altogether different conditions from what I have seen it growing naturally; I have seen it in the Alps in sheltered places and you have it in the full sun." We must remember that the fullest amount of light we can give them in the West of England is nothing as compared with what they get in a sheltered or half-shady position in their own country. Only think of the tremendous flare of light which the Himalayan plants get in spring, which none of us can imitate.

Taking all this into consideration, I think these Conferences of great use for the purpose of enabling us to compare notes as to the way in which these flowers are to be grown, because I am quite sure by so doing we shall attain results which no attempt to imitate natural conditions and no theory (unsupported by actual experiment) could enable us to do.

Mr. Fraser: My experience is that various species of

Primula grow indifferently in various kinds of soil, but the soil most suitable all round is that which is inclined to be heavy, and there must be a continuous supply of moisture; but if the atmospheric conditions are suitable, the matter of soil is of secondary importance. In the neighbourhood of London the climate is very dry; the rainfall does not exceed on an average 24 inches in the year. The soil in the spring-time may be suitable enough, and the Primulas may do very well then; but the supply of moisture failing after the blooming period is over, these Primulas are apt to die out. Now an important point is that the moisture must be continuous, because in a great many species after the blooming period is over the growth does not stop, but is continued, and by far the largest and healthiest leaves are produced by some species after the blooming period is over; so that instead of being dried up the moisture ought to be continuous. Then, if the atmospheric conditions are suitable, you may succeed, for I think they are of more importance than the matter of soils. This brings me to speak of the Himalayan species, *P. denticulata* and its varieties. In our climate we find we can cultivate it very well until autumn. It is inclined to show its bloom in the autumn too early for our requirements; then, if a mild period intervenes in the end of the season, the flowers are too far forward, and if frost and thaw intervene alternately these flowers are destroyed. If we could induce these Primulas to rest at that time we would succeed far better with *P. denticulata* and *P. capitata*, and those sorts, than we do at present. Then as to shade, I think that is of secondary importance. It is important from this point of view to prolong the period of bloom, especially if we want those flowers to keep their colours and their particular hue; but if the conditions are otherwise suitable in the open air, I think the shading is not at all important.

VOTES OF THANKS.

The CHAIRMAN: We have now exhausted our prescribed programme, but before the meeting closes, I should like to propose a vote of thanks to those gentlemen who have prepared papers. The value of these papers is very great indeed, and the least that we can do, I am sure, is to pass a most hearty vote of thanks to those who have so kindly devoted time and attention to their preparation.

Rev. C. Wolley Dod: I have very great pleasure in seconding the motion, which, I am sure, you will carry with acclamation.

Mr. Wilson: As the votes of thanks were given *en masse* to the readers of the papers, I wish very much, personally, as a grower of Primroses, who has been trying many experiments, to say what great value the drawings which accompany Dr. Masters' paper will be to me. I am ashamed to say I had never studied the characteristics of the roots of Primulas as I ought to have done. This paper will be a valuable guide to me, not only as to positions, but also as to the soils in which to place them.

The resolution was unanimously agreed to.

Mr. Richard Dean: I trust we shall not separate without giving to our Chairman a cordial vote of thanks for the admirable manner in which he has conducted the business of this meeting. I trust, also, that this Conference and this Exhibition may have been to him something in the shape of a refreshment from other work.

Mr. Baker: I have great pleasure in seconding that vote of thanks. We have had a most interesting meeting and discussion. Of course, as Mr. Wolley Dod observed, we must mainly rely on practical experience. We have curtailed the formal proceedings of the meeting in order to give members attending here a fuller opportunity of discussing practical matters and of studying the rich store of material which there is downstairs. I am sure all will join in cordially supporting a vote of thanks to our Chairman, who is most emphatically, as a practised cultivator, the right man in the right place on this occasion.

The resolution was carried by acclamation.

The Chairman: I thank you very much for the kind way in which you have proposed and received the vote of thanks. I can only say I have enjoyed the meeting as much as any one in this room can have done.

APPENDIX.

[The following article on the Fungous Diseases of Primulaceæ was contributed to the *Gardeners' Chronicle*, by Mr. W. G. Smith, and is here inserted, as likely to be of interest to cultivators.]

DISEASES OF PRIMULACEÆ AS CAUSED BY FUNGI. By WORTHINGTON G. SMITH.

The members of the natural order Primulaceæ are attacked by but few fungi, and of these the majority grow on the species belonging to the genus Primula. In the case before us, as in several others, where the number of species of fungi belonging to any natural order of plants is small, the smallness of the number is counter-balanced by the virulence of one or two of the fungoid species.

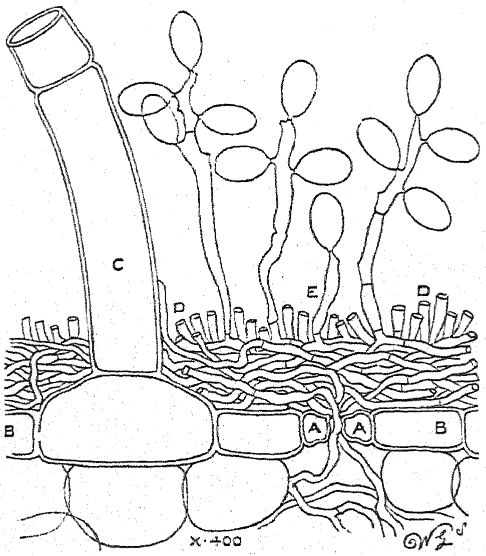

Fig. 27.—PRIMULA DISEASE: PERONOSPORA INTERSTITIALIS.

The beautiful Soldanella is often deformed by *Æcidium soldanellæ*, Hornschuch; a second pest on this plant is *Septoria soldanellæ*, Berkeley. The Lysimachia is attacked by *Septoria lysimachiæ*, West., and Phoma lysimachiæ, CK.; the Trientalis by *Tuburcinia trientalis*, Berkeley and Broome; *Ascomyces trientalis*, Berkeley, and *Penicillium abnorme*, Berkeley and Broome. I have noticed no other fungi than the above on the genera of Primulaceæ, exclusive of Primula.

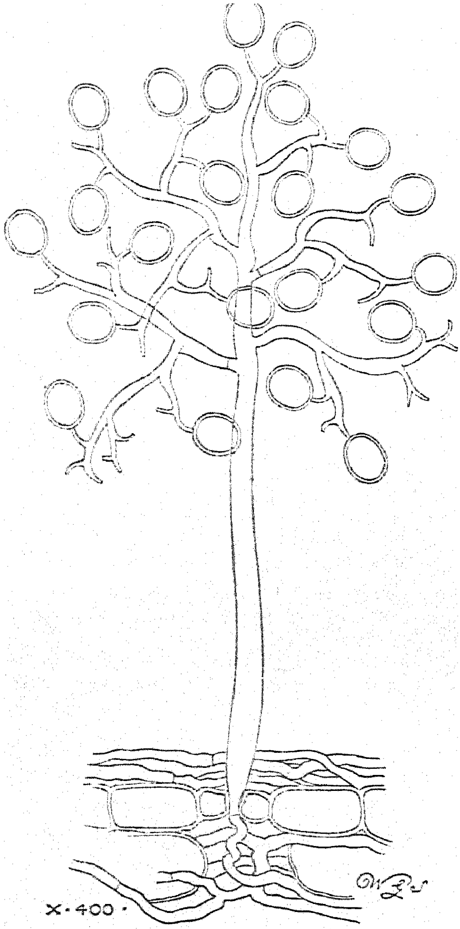

Fig. 28.—PERONOSPORA CANDIDA. Magn, 400 diam.

Amongst diseases of Primulas, the one caused by the attack of the fungus named *Urocystis Primulicola*, Magnus, on Primula farinosa, is a notable one. It was illustrated and described (for the first time as British) in the *Gardeners' Chronicle* for August 30th, 1884, pp. 268, 269. *Phyllosticta primulæcola* grows on fading leaves of the common Primrose.

The Primulaceæ have their fair share of species of Æcidium and Puccinia, two sets of fungi which are believed by many botanists to be genetically connected. It happens that the species belonging to the Primulaceæ have been called Eu-pucciniæ, which means that all the spore forms—Uredo, Puccinia, and Æcidium—are supposed to grow on the same host plant. Beginning with Soldanella, we have *Æcidium soldanellæ*, a fungus which was published by Mr. Berkeley in the *English Flora*, fifty years ago. As far as I know, the Puccinia, which should accompany it on the same host plant, has kept in the background, for it has not yet been seen in Britain.

Puccinia primulæ, Greville, grows on Primrose leaves from June to September; *Æcidium primulæ*, its supposed second, grows on Primrose leaves in May. The Puccinia is sometimes called Uromyces, at other times, Trichobasis; the last name has recently been most approved.

We now come to the two species of Peronospora; these parasites cause great destruction. The larger in size of the two is *P. candida*, Fückel (fig. 28); it forms dense white effused patches on the underside of Primrose leaves in summer and autumn. It is an ally of the Clover Peronospora, and belongs to the group Effusæ. The second species is *P. interstitialis* (fig. 27), a very much smaller plant; this grows on the underside of Primrose leaves in the summer, and is generally confined to the interstices of the veins; the conidia are often terminal, *i.e.* one conidium or spore to a fungus stem. In this simple state it resembles Ovularia. Both fungi produce resting-spores. I am not acquainted with any illustrations of these fungi other than the two herewith appended, which have been engraved from Nature to the same scale, viz., enlarged 400 diameters. The larger (fig. 28) is P. candida, Fkl., a very handsome, much-branched fungus; the smaller, P. interstitialis, B. and Br. (fig. 27). Leaves affected with either fungus should be gathered and shown "the primrose way to the everlasting bonfire," as the "Porter" says in *Macbeth*. The abundant germs of these two Primrose fungi are of course infectious, cuticle-piercing, and "putrefactive."—WORTHINGTON G. SMITH, *Dunstable*, in *Gardeners' Chronicle*. [For an account of the insects affecting Auriculas, *see Gardeners' Chronicle*, May 5th, 1877, p. 570, fig. 92.]

CULTIVATED PRIMROSES.

[The following List of Species is taken from a printed Catalogue, of which copies were sent to the Conference by Mr. STEIN, the Curator of the Breslau Botanic Garden.]

PRIMULA L.

A.—*Sphondylia*, Duby.

1. P. japonica, *A. Gray*.
   (P. pyramidalis, *Siebold*, 1862 (?), not known.
2. verticillata, *Forskahl*.
3. P. Boveana, *Decaisne* = *verticillata* hort. *P. verticillata* var. *abysinnica* hort. *P. verticillata var. simensis*, Masters. *P. Courtii*, hort., Veitch.
4. P. floribunda, *Wallich*.

4A. P. prolifera, *Wall.* = *P. imperialis*, hort., nec. Junghuhn.

B.—*Auganthus*, Schott.

5. P. sinensis *Lindley* = P. *prænitens*, var.

5A. P. sinensis × officinalis, *Wittmack*, verisimiliter erratum.

C.—*Cortusina*, Schott.

6. P. cortusoides, *L.*
7. P. gracilis, *Stein* (P. cortusoides × Sieboldii).
8. P. Sieboldii, *Morren*, *P. amœna*, hort. nec *Marshall v. Bieberstein; P. cortusoides amœna*, hort.
9. P. mollis, *Nuttall*.
10. P. Kaufmanniana, *Regel*.

D.—*Sredinskya*, Stein.

11. P. grandis, *Trautvetter*.

E.—*Primulastrum*, Duby, partly.

12. P. inflata, *Lehmann*, P. *macrocalyx*, Bunge, *P. uralensis*, hort.
13. P. officinalis, *Jacquin*.
14. × media *Peterm.* (unicolor, *Lange*, P. officinalis × elatior, *Muret*).

15. P. intricata, *Grenier and Godron.*
16. P. carpathica, *Fuss.*
17. P. amœna, *Marschal v. Bieberstein.*
18. P. elatior, *Jacquin.*
19. P. suaveolens, *Bert.* = *P. columnæ*, Tenore, *P. Tommassinii, Grenier and Godron.*
20. × brevistyla, *D.C.* = *P. variabilis*, Goupil (P. subacaulis × officinalis, A. Kerner), *P. anglica*, hort., *P. elatior*, hort. plur.
21. × flagellicaulis, *A. Kerner* (P. superacaulis × officinalis, A. Kerner).
22. P. digenea, *A. Kerner* (P. elatior × acaulis, *Reuter*, P. acaulis × officinalis, *Muret.*).
23. P. vulgaris, *Hudson*, 1762 (P. *grandiflora*, Lamarck, 1778, P. *acaulis*, L., 1778.
24. P. Sibthorpii, *Reichenbach* (*P. altaica*, hort., Angl.)

F.—*Aleuritia*, Duby.

25. P. penduliflora, *A. Kern*, MSS., *P. sikkimensis*, hort. nec. Hooker.
26. P. involucrata, *Wallich* (*P. Munroi*, hort.)
27. P. speciosa, *Don.* (*speciosa*, Gusmus = P. farinosa).
28. P. rosea, *Royle.*
29. P. Jaeschkeana, *A. Kerner.*
30. P. cashmeriana, *Royle.*
31. P. elliptica, *Royle.*
32. P. fimbriata, *Wallich.*
33. P. denticulata, *Smith*, et var. amabilis, *Leichtlin.*
34. P. capitata, *Royle.*
35. P. Fortunei, *Vatke* (*P. erosa*, hort).
36. P. Parryi, *A. Gray.*
37. P. altaica, *Lehmann* (*P. undulata*, Fischer).
38. P. davurica, *Sprengel.*
39. P. mistassinica, *Michaux.*
40. P. sibirica, *Jacquin.*
41. P. borealis, *De Candolle.*
42. P. longiscapa, *Ledebour.*
43. P. magellanica, *Lehmann.*
44. P. lepida, *De Candolle.*
45. P. frondosa, *Janka.*

46. P. farinosa, *Linnæus*, *P. vratensis*, *P. speciosa*, *P. stricta*, P. *denudata*, all of *Gusmus;* are all considered slighc (unwesentliche) forms of farinosa.
47. P. Warei, *Stein.*
48. P. scotica, *Hooker.*
49. P. longiflora, *Allioni.*
50. P. auriculata, *Lamarck* (*P. longifolia*, Curtis).
51. P. pycnorhiza, *Ledebour.*
52. P. luteola, *Ruprecht* (*P. auriculata*, hort. plur. non *Lamarck*).
53. P. Stuartii, *Wallich.*
54. P. purpurea, *Royle.*
55. P. nivalis, *Pallas* (*P. speciosa* (Gmelin non Don).
    var. longifolia, *Regel.*
    var. turkestanica, *Regel.*
        The plants generally cultivated as nivalis are white or whitish-flowered forms of *P. hirsuta* or *P. villosa.*
56. P. algida, *Adams.*

G.—*Arthritica* (Duby p.p.), Schott.

57. P. calycina, *Duby* (*P. glaucescens*, *Mor.*).
58. P. spectabilis *Trattinick* (*P. Polliniana*, *Mor.*).
59. P. Clusiana, *Tausch.*
    P. intermedia, *Portschltz* (P. Clusiana × minima, *A. Kerner*, not in cultivation; the plant so-called in England is a form of P. alpina, *Schleicher*).
60. P. Wulfeniana, *Schott.*
61. P. integrifolia, *Linn.* (*P. Candolleana*, Reichenbach, *P. incisa*, Lamarck.
62. P. Kitaibeliana, *Schott.*
63. P. angustifolia, *Torrey.*
64. P. Fachinii, *Schott* (P. subminina × spectabilis, *Stein*).
65. P. Dumoulinii, *Stein* (P. superminima × spectabilis).
66. P. Muretiana ×, *Moritzi* (P. subintegrifolia × viscosa, A. Kerner).
67. D. Dinyana ×, *Lagger* (P. superintegrifolia × viscosa, A. Kerner).
    P. Heerii (P. hirsuta × integrifolia, *Brügg*), P. Escheri, Brügg, (P. Auricula × integrifolia, Brügg), P. Hugueninii, Brügg (P. integrifolia × glutinosa, Brugg), are mentioned by Stein as not having been seen by him in gardens.

H.—*Cyanopsis*, Schott.

68. P. glutinosa, *Wulfen*.

J.—*Kablikia*, Opitz (Chamæcaulis, *Schott*).

69. P. minima, *Linnæus*.

P. *serratifolia* of Gusmus is noted as a slight variety.

69A. P. suffrutescens, *A. Gray*.

70. P. Floerkeana × *Schrader* (P. superglutinosa × minima, *A. Kerner*).

71. P. biflora × *Huter* (P. Floerkeana × minima, var. P. Salisburgensis × minima, *A. Kerner*).

72. P. Huteri, *A. Kerner* (P. Floerkeana × glutinosa, var. P. Salisburgensis × glutinosa, *A. Kerner*.

73. P. Salisburgensis × *Floerke* (P. subglutinosa × minima, *A. Kerner*).

74. P. Forsteri, *Stein* (P. superminima × hirsuta, *Stein*).

75. P. Steinii, *Obrist*. (P. subminima × hirsuta, *Stein*).

76. P. pumila, *A. Kerner* (P. minima × œnensis, *A. Kerner*).

P. truncata, *Lehmann* = *P. Sturii*, Schott (P. minima × villosa, *Schott*), is mentioned by Stein as possibly not in cultivation, the plant offered for it being a high Alpine dwarf form of P. villosa, *Jacquin*.

K.—*Rhopsidium*, Schott.

77. P. Allionii, *Loiseleur*.

78. P. tyrolensis, *Schott* (P. Allioni, Koch, non Schott).

79. P. Venzoi, *Huter* (P. venzoides, *Huter*, olim, P. tyrolensis × Wulfeniana, *A. Kerner*).

L.—*Erythrodosum*, Schott.

80. P. œnensis, *Thom.*, 1852 (P. daonensis, *Leybold*, 1854).

81. P. confinis, *Schott*, optima species.

82. P. pedemontana, *Thom.*

83. P. villosa, *Jacquin*, *P. incisa*, Gusmus, non Lamarck.

84. P. hirsuta, *Allioni* (*P. viscosa*, Villars nec. Allionii, *P. villosa*, Koch partly, *P. ciliata*, Schrank, *P. nivalis*, hort., *P. pallida*, Sch. Syll., *P. decora*, Sims).

85. P. Berninæ ×, *A. Kerner* (P. Salisii, Brügg, P. hirsuta × viscosa, *A. Kerner*, P. graveolens × villosa, *Christ.*).

P. Plantae, *Brügg* (P. hirsuta × œnonensis, *Brügg*), is supposed not to be in cultivation.

86. P. viscosa, *Allioni* (*P. hirsuta*, Villars, non Allioni, *P. graveolens*, Heg., *P. latifolia*, Lapeyrouse).
87. P. commutata, *Schott* (P. Nelsoni, hort., Angl., near P. hirsuta).
88. P. pubescens, *Jacquin* (P. superauricula × hirsuta, *A. Kerner*, *P. rhætica*, Gaudin, *P. helvetica*, Don.).
89. P. Arctotis ×, *A. Kerner* (P. subauricula × hirsuta, *A. Kerner*).
90. P. Göblii, *A. Kerner* (P. superauricula × villosa, *Stein*).
91. P. Kerneri, *Göbl et Stein* (P. superauricula × villosa, *Stein*).
92. P. alpina, *Schleicher* (P. superauricula × viscosa, *Stein*, *P. rhætica*, Koch, non Gaudin, P. intermedia, hort. Angl., non Portschl.).
93. P. Peyritschii ×, *Stein* (P. subauricula × viscosa, *Stein*, *P. viscosa major*, hort. Angl.).
94. P. discolor ×, *Leybold* (P. superauricula × œnensis, *A. Kerner*).
95. P. Portæ × Huter (P. subauricula × œnensis, *A. Kerner*).

M.—*Auricula*, Tournefort.

96. P. Balbisii, *Lehmann* (P. ciliata, Moretti, non Schrank).
97. P. Obristii ×, *Stein* (P. super-Balbisii × Auricula, *Stein*).
98. P. similis ×, *Stein* (P. super-Balbisii × Auricula, *Stein*).
99. P. Auricula, *Linnæus*, var. marginata.
100. P. Palinuri, *Petagna*.
101. P. marginata, *Curtis* (*P. crenata* Lamarck).
102. P. venusta, *hort.* (P. Auricula × carniolica, *A. Kerner*).
    P. Weldeniana, *Reichenbach*, probably a cross between *P. Balbisii* and *P. spectabilis.*
103. P. carniolica, *Jacquin*, and var. multiceps, *Freyer* (P. Freyeri, *Hladn.*, P. Jellenkiana, *Freyer*).

NEWLY-DESCRIBED CHINESE AND TIBETAN SPECIES.

Since the close of the Conference, various species of Primula from Yunnan and from Eastern Tibet have been published by M. Franchet in the *Bulletin de la Société de France*, 1885 and 1886. The plants have been collected by M. Delavay and by the Abbé David.

Some of these are enumerated in Mr. Dewar's list (see *post*), but the following were only published subsequently to the printing of that catalogue. These are :—

P. Davidii, *Franchet*, E. Tibet.
P. Forbesii, *Franchet*, Yunnan.
P. incisa, *Franchet*, E. Tibet.
P. malacoides, *Franchet*, Yunnan.
P. malvacea, *Franchet*, Yunnan.
P. membranifolia, *Franchet*, Yunnan.
P. moupinensis, *Franchet*, E. Tibet.
P. nutans, *Franchet ex Delavay*, Yunnan.
P. oreodoxa, *Franchet*, E. Tibet.
P. ovalifolia, *Franchet*, E. Tibet.
P. Poissoni, *Franchet*, Yunnan.

NEW PERSIAN SPECIES.

P. heterochroma, *Stapf.*, Persia.

This is described by Stapf. in *Botan. Erbgenisse Polak.* (1886), p. 70. It is described as like a Primrose, but with leaves white on the under surface.

NEW CLASSIFICATION OF PRIMULA.

Professor Van Tieghem has subjected to minute anatomical scrutiny many of the species of Primula, including several of those collected in Yunnan, and described by M. Franchet. M. Van Tieghem's remarks have been published in the *Bulletin de la Société Botanique de France*, tom. xxxiii, pp. 95, 126, 1886, and in conjunction with M. Douliot in the *Annales des Sciences*, ser. 3, tom. 3 (July 1886), p. 285, *et seq.*

As M. Van Tieghem's characters are not likely to be turned to practical use in gardens, it will suffice to say that his classification is based purely upon anatomical details, and that the species are grouped under two genera, Primula and Auricula, thus :—

Central cylinder of the stem provided with pith, undivided, but spreading out into a concentric ring of fibro-vascular bundles . . . . PRIMULA, Linnæus.

Central cylinder of the stem, without pith, slender, and breaking up into a number of more or less detached fibro-vascular bundles . . . . AURICULA, Tournefort.

Primula is further divided as follows :—

Tap root persistent—§ 1., sinenses, *e.g.*, *P. sinensis.*

Tap root transitory—

- Bark of root ultimately peeling off—§ 2., cortusoides, *e.g.*, *P. cortusoides.*
- Bark of root persistent—§ 3., officinales, *e.g.*, *P. officinalis.*

Auricula is divided according to the number, form and arrangement of the groups of fibro-vascular bundles (= *steles*).

Stele solitary, undivided—§ 4., reptantes, *e.g.*, *A. reptans.*

Steles numerous—

- Steles circular (or cylindric)—§ 5., ursinæ.
- Steles flattened (arranged in arcs)—§ 6., farinosæ, *e.g.*, *A. farinosa.*
- Steles fused into a ring, from the outer side of which the roots are given off—§ 7., japonicæ, *e.g.*, *A. japonica.*

SYNONYMIC LIST
OF THE
SPECIES AND FORMS
OF THE GENUS
PRIMULA.

BY

DANIEL DEWAR,

FOREMAN OF THE HERBACEOUS DEPARTMENT, ROYAL GARDENS, KEW.†

acaulis, Jacq.,—vulgaris.
*×admontensis, *Gusm.*
    Clusiana × Auricula, *Gusm.*
    Churchillii, Gusm.
alba, Hoffmsg.,—viscosa var.
*algida, *Adams*, Siberia, &c.
    auriculata var. sibirica, Ledeb.
    Bungeana, C. A. Meyer.
    caucasica, M. B.
    farinosa, M. B.
    glacialis, Willd.
    longifolia, M. B.
algida, Janka,—frondosa.
*Allionii, *Loisl.* Maritime Alps.
    glutinosa, All. non Wulf.
Allionii, Auct.—tyrolensis.
alpestris, Schur—elatior var.

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† In the following List, Synonyms are indicated in italics, Hybrids by the affix of a ×. An Asterisk (*) is prefixed to the names of those species and varieties which were exhibited at the Primula Show from the Royal Gardens, Kew.

* × alpina, *Schleich.*
super-Auricula × viscosa, *Stein.*
rhaetica, Koch non Gaud.
intermedia, Hort., non Portschlg.
alpina, Loisl.,—viscosa.
alpina, Reich.,—pubescens.
alpina, Salisb.,—Auricula.
altaica, Lehm.,—longiscapa var.
altaica, Pall.,—elatior var.
altissima, Don.—reticulata.
ambigua, Salisb.,—officinalis.
amethystina, *Franchet*, Yun-nan.
amœna, Hort.,—cortusoides var.
amœna, M. B.,—elatior var.
amœna, Hort.,—vulgaris var.
anglica, hort. Angl.,—elatior var.
angustifolia, *Torr.*, N. America.
* × Arctotis, *Kern.*
sub-Auricula × hirsuta, *Kern.*
Aucheri, Jaub. and Spach,—verticillata var.
*Auricula, *L.* Alps, Eur., &c.
lutea, Lam.
alpina, Salisb.
*var. Balbisii, *Lehm.*
ciliata, Moret.
**var.* bellunensis, *Venzo.*
var. dolomitica, *Baker.*
**var.* marginata.
var. mollis.
Auricula, Vill.,—marginata.
*auriculata, *Lam.*, Siberia.
longifolia, Curtis in Bot. Mag. t 392.
macrophylla, Koch.
pycnorrhiza, Ledeb.
Tournefortii, Rupr.
var. glacialis, *Boiss.*
glacialis, Adams.
var. polyphylla, *Franchet.* Yun-nan.
Balbisii, Lehm.—Auricula var.

- *Bayneri*, Rupr.,—nivalis var.
- *Berninæ, *Kerner*.
- *biflora, *Huter*.
- *Boveana*, Dcsne.,—verticillata var.
- bracteata, *Franchet*, Yun-nan.
- *breviscapa*, Murr.,—vulgaris.
- *× brevistyla, *D. C.*
  - sub-acaulis × officinalis, *Kern.*
  - *variabilis*, Goup.
- bullata, *Franchet*. Yun-nan.
- *Bungeana*, Meyer,—algida.
- *cachemiriana*, Munro,—denticulata var.
- *cadinensis*, Porta,—daonensis.
- calliantha, *Franchet*. Yun-nan.
- *calycantha*, Retz,—vulgaris.
- *calycina, *Duby*. Lombardy.
  - *glaucescens*, Moret.
  - *integrifolia*, Wulf. non L.
  - *lævigata*, Duby.
- *Candolleana*, Reich.,—integrifolia.
- *capitata, *Hook.*, Himalayas.
  - *globifera*, Griff.
- capitellata, *Boiss.*, Persia.
- *carinthiaca*, Gusm.,—Auricula var.
- *carniolica, *Jacq.*, Austrian Alps.
  - *grandiflora*, Bastard.
  - *integrifolia*, Scop. non L.
  - **var.* multiceps, *Freyer*.
    - *Freyeri*, Hladnik.
    - *Jellenkiana*, Freyer.
  - *var.* multiflora. *Hort.*
- *carpathica*. Fuss,—elatior var.
- *caucasica*, Koch,—algida.
- cernua, *Franchet*, Yun-nan.
- *Churchillii*, Gusm.—admontensis.
- *ciliata*, Schrank,—viscosa var.
- *ciliata*, Moret.,—Auricula var.
- Clarkei, *Watt*, Himalayas.
- *Clusiana*, Tsch.,—spectabilis var.

- _Clusii_, Wiest, in Gaudin's "Flora of Switzerland."—spectabilis var.
- concinna, _Watt_, Himalayas.
- _Columnæ_, Ten.,—officinalis var.
- _commutata_, Schott,—viscosa var.
- _confinis_, Schott,—viscosa var.
- _coronaria_, Salisb.,—officinalis.
- × coronata, Porta, minima × spectabilis.
- _cordifolia_, Rupr.—elatior var.
- *cortusoides, _L._ Siberia, Japan, &c.
  - _patens_, Turcz.
  - _var._ dentata, _Don._
  - _var._ dentiflora, _Andr._
  - _var._ Jekyllæ, Dewar in _Garden_, Sept., 1885, p. 266.
  - *_var._ Sieboldii, _Morr._
    - _amœna_, _Hort._
- _cortusoides_, Herder.—Kaufmanniana.
- _Courtii_, hort Veitch.—verticillata var.
- _crassifolia_, Lehm—nivalis.
- _crenata_, Lam.,—marginata.
- *× cridalensis, _Gusm._
  - tyrolensis × Wulfeniana, _Gusm._
- cuneifolia, _Ledeb._, Aleutian Mts., &c.
  - _saxifragæfolia_, Lehm.
  - _hyperborea_, Spreng.
- *Cusackiana, _Gray_
- _Cushia_, Hamilt..—petiolaris.
- *daonensis, _Leyb._, Swiss Alps.
  - _cadinensis_, Porta
  - _hirsuta_, Reich.
  - _oenensis_, Thomas.
  - _Pooliana_, Brügg.
  - _Stelviana_, Vulpius.
- darialica, _Rupr._, Caucasus.
- _davurica_, Sprengel—longiscapa var.
- decipiens, _Duby_, Falkland Isl.
- _decora_, Sims—viscosa var. (probably Arctotis)
- Delavayi, _Franchet_, Yun-nan.
- _dentata_, Don,—cortusoides var.

*denticulata, *Smith*, Himalayas.
Hoffmeisteri, Klotzsch.
var. alba.
**var*. cachemiriana, Munro.
**var*. Henryi, Hort.
var. paucifolia, Hook. fil.
**var*. pulcherrima, Hort.
var. nana, Hort. Backhouse.
denticulata, Wight,—elliptica.
denticulata var. erosa, Duby,—erosa.
dentiflora, Andr.,—cortusoides var.
denudata, Ledeb.,—farinosa var.
Dickieana, *Watt*, Himalayas.
* × digenea, *Kern*.
elatior × acaulis, *Reut*.
vel
acaulis × officinalis *Muret*.
* × Dinyana, *Lagger*.
super-integrifolia × viscosa, *Kern*.
* × discolor, *Leyb*.
super-Auricula × daonensis, *Kern*.
domestica, Hoffmsg.,—elatior.
dryadifolia, *Franchet* Yun-nan.
* × Dumoulinii, *Stein*.
super-minima × spectabilis, *Stein*.
Edgeworthii, Hook.,—petiolaris var.
egallicensis, Hornem.,—mistassinica var.
*elatior, *Jacq*., Europe.
domestica, Hoffmsg.
inodora, Hoffmsg.
lateriflora, Goup.
veris var. elatior, L.
var. alpestris, *Schur*.
var. amœna, *Led*.
amœna. M. B.
var. anglica, *hort. Angl*.
var. calycantha, *Retz*.
**var*. carpathica, *Fuss*.
var. cordifolia, *Rupr*.

var. Flüggeana, _Lehm._
*_var._ intricata, _G. & G._
var. macrocarpa, _Pers._
var. Meyeri, _Boiss._
var. montana, _Opiz._
var. Pallasii, _Lehm._
var. Perreiniana, _Flügg._
var. subarctica, _Schur._
elegans, Duby,—rosea _var._
elliptica, _Royle_, Himalayas.
denticulata, Wight.
spathulacea, Jacquem.
elongata, _Watt_, Himalayas.
Elwesiana, _King_, Himalayas.
erosa, _Wall._, Himalayas.
denticulata var. erosa, Duby.
× Escheri, _Brügg._
Auricula × integrifolia, _Brügg._
exaltata, Lehm.,—longiscapa.
exscapa, Hegetschweiler—viscosa.
* × Facchinii, _Schott._
sub-minima × spectabilis, _Schott._
sub-minima × spectabilis, _Stein._
Flörkeana, Facch.
× Falkneriana, _Porta._
super-elatior × acaulis, _Porta._
farinifolia, _Rupr._, Caucasus.
*farinosa, _L_ , Europe, &c.
var. denudata, _Ledeb._
var. lepida, _Duby._
var. magellanica, _Lehm._
*_var._ scotica, _Hooker._
var. speciosa, _Gusm._
var. stricta, _Gusm._
var. vratensis, _Gusm._
farinosa, M. B.,—algida.
farinosa var.—longiflora, All.
farinosa var. turcica, Friv.,—frondosa.
farinosa, Schrenk,—nivalis var.

Fedschenkoi, *Regel*, Turkestan.
filipes, *Watt*, Himalayas.
fimbriata, *Wall.*, Himalayas.
finmarchica, Jacq.,—sibirica var.
×flagellicaulis, *Kern.*
super-acaulis × officinalis, *Kern.*
*×Flörkeana, *Schrad.*
super-glutinosa × minima, *Kern.*
minima, Reich.
hybrida, Gusm.
Flörkeana, Facch.—Facchinii.
Flörkeana, Salzer.—intermedia.
*floribunda, *Wall.*, Himalayas.
obovata, Wall.
*×Forsteri, *Stein.*
super-minima × hirsuta, Stein.
Flüggeana, Lehm.,—elatior var.
Freyeri, Hladn.,—carniolica.
Freyeri, Hoppe,—venusta.
frondosa, *Janka*, Thrace.
algida, Janka.
farinosa var. turcica, Friv.
geraniifolia, *Hook. fil.*, Himalayas.
gigantea, *Jacq.*, Siberia.
modesta, Moore & Bisset.
glabra, *Klatt*, Himalayas.
glacialis, *Franchet*, Yun-nan.
glacialis, Adams,—auriculata var.
glacialis, Boiss.,—auriculata var.
glacialis, Willd.,—algida.
glandulosa, Duby, MSS.,—viscosa var.
glaucescens, Moret.,—calycina.
globifera, Griff.,—capitata.
*glutinosa, *Wulf.*, European Alps.
glutinosa, All.,—Allionii.
glutinosa, Sch.,—minima.
*×Göblii, *Kern.*
super-auricula × villosa, *Stein.*
auricula × villosa, *Kern.*

*×gracilis, Stein.
cortusoides × Sieboldii, *Stein.*
cortusoides var. intermedia, hort. Angl.
*grandis, *Trautv.* Orient.
grandiflora, Bast.,—carniolica.
grandiflora, Hort.,—rosea var.
grandiflora, Lam., vulgaris.
graveolens, Heg.,—viscosa.
Griffithii, Watt,—obtusifolia var.
×Heeri, *Brügg.*
hirsuta × integrifolia, *Brügg.*
helvetica, Don.—pubescens.
Henryi, Hort.,—denticulata var.
Heydei, *Watt*, Himalayas.
hirsuta, All.,—viscosa var.
hirsuta, Vill.,—pubescens.
hirsuta, Reich.,—daonensis.
Hoffmeisteri, Klotsch,—denticulata.
Hookeri, *Watt*, Himalayas.
Hornemanniana, Lehm.,—mistassinica.
humilis, Steud.,—pusilla.
×Hugueninii, *Brügg.*
glutinosa × integrifolia, *Brügg.*
*×Huteri, *Stein.*
Flörkeana × glutinosa.
vel
salisburgensis × glutinosa, *Stein.*
hybrida, Schleich.,—vulgaris.
hybrida, Gusm.,—Flörkeana.
hyperborea, Spr.,—cuneifolia.
imperialis, Jungh.,—prolifera.
incisa, Gusm.,—viscosa var.
incisa, Lam.,—integrifolia.
inflata, Lehm.,—officinalis var.
inodora, Hoffmsg.,—elatior.
*integrifolia, *L.* Swiss Alps., &c.
Candolleana, Reich.
incisa, Lam.
integrifolia, Vulp.,—spectabilis, var.

integrifolia, Scop.,—carniolica.
integrifolia, Jacq.,—spectabilis var.
integrifolia, Sturm.,—spectabilis.
integrifolia, Gunner,—sibirica.
*×intermedia, *Tratt.*,—Porten, *Schlag.*
  Clusiana × minima, Kern.
  Flörkeana, Salzer.
  puberula, Schott.
intermedia, Ledeb., sibirica.
intermedia, Curt.,—longiscapa var.
intricata, Grenier et Godson—elatior var.
intrusa, *Reich.*, Siberia.
*involucrata, *Wall.*, Himalayas.
  var. Munroi, *Ldl.*
involucrata, Sweet Cat.,—verticillata.
Jaeschkiana, Kern., Stuartii var. Himalayas.
*japonica, *A. Gray*, Japan.
  pyramidalis Sieb.
Jekyllæ, Dewar in *Garden*, 1885, p. 266.—cortusoides var.
Jellenkiana, Frey.,—carniolica var.
Jesoana, *Miq.*, Japan.
Jiraseckiana. Tratt.,—minima var.
Kaufmanniana, *Regel*, Turkestan.
  cortusoides, Herder.
*×Kerneri, *Göbl & Stein.*
  sub-Auricula × villosa, *Stein.*
Kingii, *Watt*, Himalayas.
Kitaibeliana, Schott,—spectabilis var.
kisoana, *Miq.*, Japan.
lactea, Lam.,—Androsace lactea.
laevigata, Duby,—calycina.
lateriflora, Goup.,—elatior.
latifolia, Lap.,—viscosa var.
*×Leudrensis, *Porta.*
  sub-elatior × officinalis, *Porta.*
×Lebliana, *Gusm.*
  Auricula × Wulfeniana.
lepida, Duby,—farinosa var.
lineariloba, *Hook. fil.*,—Stuartii var.

Listeri, *King*, Himalayas.
*longibarda, Porta.
    calycina var.
*longiflora, *All.*, S. Alps.
    farinosa var., Scop.
×longiflora, *Krättlii*. *Brügg*, 1876.
    farinosa × longiflora, (*Brügg*).
longifolia, Curt.,—auriculata.
longifolia, Rgl.,—nivalis var.
longifolia, M. B.,—algida.
*longiscapa, *Ledeb.*, Altai.
    exaltata, Lehm.
    nivalis, Turcz.
    sibirica, Willd.
    undulata, Fisch.
    var. altaica, *Lehm.*
    var. davurica, *Spr.*
    var. intermedia, *Curt.*
lutea, Lam.,—Auricula.
*luteola, *Rupr.*, Caucasus.
macrocalyx, Bnge.,—officinalis var.
macrocarpa, *Max.*, Japan.
macrocarpa, Hook. fil.,—Stuartii var.
macrocarpa, Pers.,—elatior var.
macrophylla, Don,—Stuartii.
macrophylla, Koch,—auriculata.
magellanica, Lehm.,—farinosa var
×magiassonica, *Porta*.
    super-spectabilis × minima, *Porta*.
mandarina, *Hoffmsg*.
*marginata, *Curt.*, French Alps.
    Auricula, Vill., non L.
    crenata, Lam.
Maximowiczii, *Regel.*, N. China.
    oreocharis, Hance.
*×media, *Peterm.*
    officinalis × elatior, *Muret.*
    unicolor, Lange.
megaseæfolia, *Boissier & Balansa*. N. Pontus.

Meyeri, Rupr.,—elatior var.
microcalyx, Lehm.,—pubescens.
*minima, *L.* European Alps.
  glutinosa, Sch. non Wulfen
  lepontica, H. & B.
  Sauteri, Schultz.
  var. truncata, *Lehm.*
   Jiraseckiana, Tratt.
minima var. pubescens, Josch,—Sturii.
minima, Reich.,—Flörkeana.
minutissima, *Jacquem.*, Himalayas.
  Sandersiana, Royle.
  var. spatulata, *Hook. fil.*
  var. Stracheyi, *Hook. fil.*
*mistassinica, *Michx.*, N. America.
  Hornemanniana, Lehm.
  pusilla, Goldie non Wall.
  stricta, Hornem.
  var. egallicensis, *Hornem.*
mistassinica, Bnge.—borealis.
modesta, Moore & Bisset, gigantea.
*mollis, *Hook.*, Eastern Himalayas.
montana, Opiz,—elatior var.
montana, Reut.,—officinalis var.
Moorcroftiana, Wall.,—Stuartii var.
multiflora, Hort.,—carniolica var.
multiceps, Frey.,—carniolica var.
Munroi, Ldl.,—involucrata var.
*× Muretiana, *Moritzi.*
  sub-integrifolia × viscosa, *Kern.*
  Muretii, Reich.
  Muretii, Reich.—Muretiana.
muscoides, *Hook. fil.*, Himalayas.
  var. tenuiloba, *Watt.*
nana, Wall.—petiolaris var.
nana, Hort.—denticulata var.
Nelsoni hort. Angl.,—viscosa var.
nivalis, *Pall.*, Caucasus, Siberia, &c.
  crassifolia, Lehm.

orientalis, Willd.
speciosa, Gmel. Jun.
var. Bayneri, *Rupr.*
var. farinosa, *Schrenk.*
var. longifolia, *Regel.*
var. turkestanica, *Regel.*
var. pumila, *Ledeb.*
nivalis, Turcz.,—longiscapa.
nivalis, Hort.,—viscosa var.
nivea, Hort.,—viscosa var.
norvegica, Retz,—sibirica var.
*obconica, *Hance*, China.
poculiformis, Hook. fil.
× obovata, *Huter.*
Balbisii × tyrolensis, *Kern.*
obovata, Wall.,—floribunda.
* × Obristii, *Stein.*
super-Balbisii × Auricula, *Stein*
obtusifolia, *Royle*, Himalayas.
var. Griffithii, *Watt.*
var. Roylei, *Hook. fil.*
var. Sammiana, *King. MSS.*
odontophylla, Wall.,—rotundifolia.
œnensis, Thomas,—daonensis.
odorata, Gilib.,—officinalis var.
*officinalis, *Scop.*, Europe, &c.
ambigua, Salisb.
coronaria, Salisb.
pistillaris, Hoffmsg.
uralensis, Fisch.
variabilis var. officinalis, Tratt
veris var. officinalis, L.
var. Columnæ, *Ten.*
**var.* inflata, *Lehm.*
var. macrocalyx, *Bnge.*
var. montana, *Reut.*
var. odorata, *Gilib.*
**var.* suaveolens, *Bert.*
var. vernalis, *Salisb.*

Olgae, *Regel*, Turkestan.
oratensis, Gusm. (See Vratensis).
oreocharis, Hance,—Maximowiczii.
orientalis, Willd.,—nivalis.
*Palinuri, *Petag.*, Italy.
pallida, Schott,—viscosa var.
Pallasii, Lehm.,—elatior var.
parvifolia, Duby,—borealis.
patens, Turcz.,—cortusoides.
*Parryi, *A. Gray*, California.
paucifolia, Hook. fil.,—denticulata var.
pedemontana, Thomas,—viscosa var.
*penduliflora, *Kern.*, Asia Minor. *Sikkimensis.* hort. non Hook.
Perreiniana, Flügg.,—elatior var.
petiolaris, *Wall.*, Himalayas.
    Cushia, Hamilt.
    sessilis, Royle.
    tridentata, Don.
    var. Edgeworthii, *Hook.*
    var. nana, *Wall.*
    var. pulverulenta, *Edgew.*
    var. scapigera, *Hook.*
    var. Stracheyi, *Strach. and Wint.*
    var. sulphurea, *Strach.*
* × Peyritschii, *Stein.*
    sub-Auricula × viscosa, *Stein.*
    viscosa major, hort.
    pinnatifida, *Franchet*, Yun-nan.
pistillaris, Hoffmsg.,—officinalis.
pistifolia, *Griseb.*, S. America.
× Plantae, *Brügg.*
    hirsuta × daonensis, (*Brügg*).
poculiformis, Hook. fil.,—obconica.
Polliniana, Moret.,—spectabilis var.
Pooliana, Brügg.,—daonensis.
* × polyantha, *Mill.*
    veris × vulgaris (*Mill*).
× Portae, *Huter.*

- sub-Auricula × daonesis, *Kern.*
- *prænitens*, Ker,—sinensis.
- *prolifera, *Wall.*, Himalayas.
    - *imperialis*, Jungh.
    - *Cankrienia chrysantha*, De Vriese.
- × pseudo-acaulis, *Brügg.* (1884.)
    - vulgaris × officinalis (*Brügg*).
- * × pubescens, *Jacq.*
    - super-Auricula × hirsuta, *Kern*
    - *alpina*, Reich.
    - *helvetica*, Don.
    - *hirsuta*, Vill.
        - *rocalyx*, Lehm.
    - *rhaetica*, Gaud.
    - *villosa*, Ait.
- *puberula*, Schott,—intermedia.
- *pulcherrima*, Hort.,—denticulata var.
- *pulverulenta*, Edgew.,—petiolaris var.
- * × pumila, *Kern.*
    - minima × daonensis, *Kern.*
- *pumila*, Ledeb.,—nivalis var.
- pulchra, *Watt*, Himalayas.
- *purpurea*, Royle,—Stuartii var.
- pusilla, *Wall.*, Himalayas
    - *humilis*, Steud.
- *pusilla*, Goldie,—mistassinica.
- *pyramidalis*, Sieb.,—japonica.
- *pyrenaica*, Mieg,—Tommasinii.
- *pycnorrhiza*, Ledeb.,—auriculata.
- Reedii, *Duthie*, Western Himalayas.
- Reinii., *Fr. & Sav.* Japan.
- reptans, *Hook. fil.*, Himalayas.
- *reticulata, *Wall.*, Himalayas.
    - *altissima*, Don.
    - *speciosa*, Don.
- *rhaetica*. Gaud.,—pubescens.
- *rhaetica*, Koch,—alpina.
- rotundifolia, *Wall.*, Himalayas.
    - *odontophylla*, Wall.

- *rotundifolia*, Pall.,—sibirica.
- *rosea, *Royle*, Himalayas, &c.
    - *var.* elegans, *Hook. fil.*
        - *elegans*, Duby.
    - **var.* grandiflora, *hort.*
- *Roylei*, Hook. fil.,—obtusifolia var.
- Rusbyi, Greene, New Mexico.
- * × salisburgensis, *Schott.*
    - sub-glutinosa × minima, *Kern.*
- *Sammiana*, King MSS,—obtusifolia var.
- *Sandersiana*, Royle,—minutissima.
- sapphirina, *Hook. fil & Thom.*, Himalayas.
- *Sauteri*, Schott,—minima.
- *saxifragæfolia*, Lehm.,—cuneifolia.
- *scapigera*, Hook.,—petiolaris var.
- *scotica*, Hook.,—farinosa var.
- secundiflora, *Franchet*, Yun-nan.
- *sedifolia*, Salisb.,—Aretia vitaliana.
- *semperflorens*, Loisl.,—sinensis.
- septemloba, *Franchet*, Yun-nan.
- serratifolia, *Franchet*, Yun-nan.
- * × serratifolia, *Gusm.*
    - minima × wulfeniana, *Gusm.*
- *sertulosa*, Kickx,—sinensis.
- *sessilis*, Royle,—petiolaris.
- *Sieboldii*, Morr.,—cortusoides var.
- *sibirica, *Jacq.*, Siberia.
    - *intermedia*, Ledeb.
    - *rotundifolia*, Pall.
    - *var.* finmarchica, *Jacq.*
        - *integrifolia*, Gunn. non L.
        - *norvegica*, Retz.
- *sibirica*, Willd.,—longiscapa.
- *Sibthorpii*, Reich.,—vulgaris var.
- *sikkimensis, *Hook.*, Himalayas.
- * × similis, *Stein.*
    - sub-Balbisii × Auricula, *Stein.*
- *Simsii*, Sweet,—viscosa var.
- *simensis*, Hochst.,—verticillata var.

sinensis, *Ldl.* China.
  prænitens, Ker.
  semperflorens, Loisl.
  sertulosa, Kickx.
soldanelloides, *Watt*, Himalayas.
sonchifolia, *Franchet*, Yun-nan.
spathulacea, Jacquem.,—elliptica.
spathulata, Hook. fil.,—minutissima var.
speciosa, Don.,—reticulata.
speciosa, Gusm.,—farinosa var.
speciosa, Gmel. Jun.,—nivalis.
*spectabilis, *Tratt.*, Southern Alps of Tyrol.
  integrifolia, Sturm.
  var. calycina, *Duby.*
    *Clusiana, *Tausch.*
    Clusii, Wiest.
    integrifolia, Jacq.
    spectabilis, Koch, pro parte.
  **var.* Kitaibeliana, *Schott.*
  **var.* Wulfeniana, *Schott.*
    integrifolia, Vulp.
spicata, *Franchet*, Yun-nan.
Stelviana, Vulp.,—daonensis.
Stirtoniana, *Wall.*, Himalayas.
* × Steinii, *Obrist.*
  sub-minima × hirsuta, *Stein.*
Stracheyi, Hook. fil.,—minutissima var.
Stracheyi, Strach. & Wint.,—petiolaris var.
stricta, Hornem.,—mistassinica.
*Stuartii, *Wall.*, Himalayas.
  macrophylla, Don.
  var. lineariloba, *Hook. fil.*
  var. macrocarpa, *Hook. fil.*
  var. Moorcroftiana, *Wall.*
  **var.* purpurea, *Royle.*
× Sturii, *Schott.*
  minima × villosa (*Schott*).
  minima var. pubescens, Josch.
suaveolens, Bert.,—officinalis var.

subarctica, Schur.,—elatior var.
*suffrutescens, *A. Gray*, California.
sulphurea, Strach.,—petiolaris var.
sylvestris, Scop.,—vulgaris.
tenella, *King* , Himalayas.
tenuiloba, Watt,—muscoides var.
× ternovania, *Kern.*
    acaulis × Columnæ, *Kern.*
tibetica, *Watt*, Himalayas.
*Tommasinii, G. & G.,—snaveolens.
    elatior × Columnæ, *Kern.*
    pyrenaica, Mieg.
tridentata, *Don*,—petiolaris.
truncata, Lehm.,—minima var.—Sturii, Schott.
tschutschorum, Kiell., Arctic Siberia.
turkestanica, Regel,—nivalis var.
*tirolensis, *Schott*, Tyrol.
    Allionii, Auct.
unicolor, Lange,—media.
uniflora, *Klatt*, Himalayas.
undulata, Fisch.,—longiscapa.
uralensis, Fisch.,—officinalis.
vaginata, *Watt*, Himalayas.
variabilis, Goup.,—brevistyla.
variabilis var. officinalis, Tratt.,—officinalis.
* × venusta, *Hort.*
    Auricula × carniolica, *Schott.*
    Freyeri, Hoppe.
* × Venzoi, *Huter.*
    tirolensis × Wulfeniana, *Kern.*
    Venzoides, Huter.
Venzoides, Huter.—Venzoi.
veris var. officinalis, L.
veris var. acaulis, L.—vulgaris.
veris, Mill.,—vulgaris.
veris var. elatior, L.—elatior.
vernalis, Salisb.,—officinalis var.
*verticillata, *Försk.*, Arabia, &c.

involucrata, Sweet Cat.
var. Aucheri, *Jaub. and Spach.*
**var.* Boveana, *Decaisne.*
var. simensis, *Hochst.*
Courtii, hort. Veitch.
villosa, Ait.,—pubescens.
villosa, Wulf.,—viscosa var.
*viscosa *Vill.*, European Alps and Pyrenees.
alpina, Loisl.
exscapa, Heg.
graveolens, Heg.
var. alba, *Hoffmsg.*
var. Bonjeani, *Huegen.*
**var.* ciliata, *Schrank.*
**var.* commutata, *Schott.*
**var.* confinis, *Schott.*
**var.* decora, *Sims.*
var. glandulosa, *Duby*, MSS.
**var.* hirsuta, *All.*
var. incisa, *Gusm.*
**var.* latifolia, *Lap.*
var. Nelsoni, *hort. Angl.*
**var.* nivalis, *Hort.*
var. nivea, *Hort.*
var. pallida, *Schott.*
**var.* pedemontana, *Thom.*
var. Simsii, *Sweet.*
viscosa var. major, Hort.—Peyritschii.
* × vochinensis, *Gusm.*, Wulfeniana × minima. Carniola.
vratensis, Gusm., farinosa var.
*vulgaris, *Huds.*, Europe.
acaulis, Jacq.
bicolor, Rafin.
breviscapa, Murr.
calycantha, Retz.
grandiflora, Lam.
hybrida, Schleich.
sylvestris, Scop.
veris, Mill.

veris var. acaulis, L.
  **var.* Sibthorpii, *Reich.*
    amœna, Hort.
* × Warei, *Stein.*
    farinosa × scotica, Stein.
* × Weldeniana, *Reich.*
    Balbisii × spectabilis (*Stein*).
Wulfeniana, Schott,—spectabilis var.
yunanensis, *Franchet*, Yun-nan.

The following abbreviations of the names of Authors occur in the above or other Lists of the Species of Primula:—

Adam., *Adams.*
All., *Allioni.*
Andr., *Andrews.*
Auct., *Auctorum (of various authors).*
Bert., *Bertero.*
B. et B., *Boissier and Balansa.*
Bnge., *Bunge.*
Boiss., *Boissier.*
Brüg., *Brügger.*
Curt., *Curtis.*
Dcne., *Decaisne.*
DC., *de Candolle.*
Facch., *Facchini.*
Fisch.. *Fischer.*
Flügg., *Flügger.*
Försk., *Förskahl.*
Fr. et Sav., *Franchet & Savatier.*
Friv., *Frivaldsky.*
Gilib., *Gilibert.*
Gmel. jun., *Gmelin junior.*

Goup., *Goupil.*
Gren., *Grenier.*
G. & G., *Grenier et Godron.*
Griff., *Griffith.*
Gusm., *Gusmus.*
Hamilt., *Hamilton.*
Heg., *Hegetschweiler.*
Hladn., *Hladnik.*
Hoffmsg., *Hoffmansegg.*
Hook., *Hooker.*
Hook. fil. et Thoms., *Hooker, J. D., & Thomson.*
Hornem., *Hornemann.*
Hort.. *Hortorum or Hortulanorum (of gardens, or of gardeners).*
Jacquem., *Jacquemont.*
Jacq., *Jacquin.*
Jaub., *Jaubert.*
Jungh., *Junghuhn.*
Kern., *Kerner.*
Lagg., *Lagger.*
Lam., *Lamarck.*
Ledeb., *Ledebour.*
Lehm., *Lehmann.*
Leyb., *Leybold.*
Ldl., *Lindley.*
L. or Linn., *Linnæus.*
Loisl., *Loiseleur.*
M. et B., *Moore and Bisset.*
M. B., *Marschall v. Bieberstein.*
Michx., *Michaux.*
Miq., *Miquel.*
Mill., *Miller.*
Moret., *Moretti.*
Morr., *Morren.*
Murr., *Murray.*
Pall., *Pallas.*
Pers., *Persoon.*
Rafin., Rafinesque.
Rgl., *Regel.*

Reich.. Reichenbach.
Reut., Reuter.
Rupr., *Ruprecht*.
Salisb., *Salisbury*.
Schleich., *Schleicher*.
Scop.. *Scopoli*.
Spreng., *Sprengel*.
Ten., *Tenore*.
Thom.. *Thomas*.
Tomm., *Tommassini*.
Torr., *Torrey*.
Tratt., *Trattinick*.
Trautv., *Trautvetter*.
Tsch., *Tschudi*.
Turcz., *Turczaninow*.
Vill., Villars.
Wall., *Wallich*.
Willd., *Willdenow*.
Wulf., *Wulfen*.

ORCHID NOMENCLATURE.

CONFERENCE AT LIVERPOOL,

WEDNESDAY, JUNE 30TH, 1886.

SIR TREVOR LAWRENCE, BART., PRESIDENT OF THE SOCIETY, IN THE CHAIR.

THE PRESIDENT, in opening the proceedings, said: Ladies and Gentlemen, I must in the first place disclaim any desire, or any pretence of being able to speak with authority in regard to a purely botanical question, whatever that botanical question may be; but there are certain aspects in which the nomenclature of Orchids especially is affected by considerations more strictly appertaining to horticulture, and, I may say, to some extent to the domain of common sense, and upon which anybody may very fairly give an opinion. The Orchid Conference Committee was appointed at the Conference last year, but it has not been able to do as much work as it might otherwise have done owing to various circumstances into which I need not enter. Some little while ago I wrote to Professor Reichenbach, expressing, on behalf of the Society, the hope that it might be convenient to him to be present here to-day to give us the assistance of his great knowledge and experience; but, unfortunately, other engagements prevent him being here. I shall call upon Mr. Ridley, who represents a very wide degree of knowledge in connection with Orchids, and who is one of the staff of the Natural History Museum, to give us an account of the present position of the Orchid Committee, and what has been done, and to add to that any remarks that he thinks proper to the occasion.

On the Nomenclature of Orchids. By H. N. Ridley, M.A.

I do not think that there can be any doubt but that the state of the nomenclature of Orchids at the present day leaves much to be desired in the way of simplification. The immense size of the order, numbering upwards of five thousand recorded species, the intricacy of the synonymy and the rapidity with which the number of known species has been increasing during the last few years, accounts for this in great measure. It has been almost impossible for our orchidologists, few as they have been, to arrange or systematize to any extent, the species of any of the larger genera in an accessible form, on account of the constant and very rapid accessions to our knowledge of the species. The result of this is that every year the difficulties increase, and seem likely to do so until some botanist shall arise who will devote himself to the humble but important task of sweeping up the scattered works of past generations, and sorting and arranging them in a simple and easily consultable form.

The whole groups of Orchids may be roughly divided into non-cultural and cultural species. By the former I mean plants which, though interesting in themselves, are not considered worthy of culture, and which are, therefore, chiefly known from herbarium specimens. These, as a rule, present little difficulty to a systematist, owing to their smaller amount of synonymy and usually more careful description, as well as to the fact that typical specimens are almost always to be found in one or the other of our great herbaria which is not always the case in the matter of the showier plants. Sometimes, however, a few of them half accidently find their way into the houses of our cultivators, often at considerable intervals of time, and, alas ! are not unfrequently saluted by a new name on each occasion. These give a good deal of trouble, as they are very soon expelled to make room for more showy plants, and are often, especially in the older works, ill-described, rarely figured, and not preserved as herbarium specimens. What wonder, then, that errors frequently occur in such cases ?

But it is specially with cultural Orchids that we have to deal to-day, and these are burdened with a synonymy that certainly requires lightening. Horticulturists' favourites may be divided into two sections—one in which the species do not vary to any great extent under cultivation, so that he who desires novelties must seek for new species; and another group in which one or a few species of a genus are so manipulated and selected that an endless variety of so-called species is the result. Among the former class I should include such genera as Dendrobium and Cœlogyne. Of these most of the specific names found in garden catalogues really represent more or less distinct species, or at the worst, well-marked varieties. The other section is, perhaps, best represented by the Cattleyas. The number of species belonging to this genus is by no means large. Mr. Bentham, in the "Genera Plantarum," computes them at about twenty species, and I think he is rather over than under the mark. The names, however, in garden books are simply legion, nearly all of which represent mere forms of *Cattleya labiata*, but which are treated as of equivalent value to genuine species such as *C. citrina*, *C. Forbesii*, &c. Some distinction should be made between these forms and the distinct species, and it could easily be done by giving fancy names to the former, and abolishing their classical names. To show the exceedingly inconvenient results of naming these forms in Latin (a language which is not too well provided with suitable adjectives for plants at the best) I may cite the following names from a recent sale catalogue:—*Cattleya Mossiæ superba*, *C. Mendelii superba*, *C. Trianæ superba*, *C. Trianæ rosea superba*, *C. Eldorado superba*, *C. Gaskelliana superba*, all of which are varieties of *C. labiata*, and quite distinct from the well-known species *Cattleya superba*. All cultural forms of this nature then should be treated as Auriculas, Roses and Tulips have been for many years, and designated when requisite by fancy names, in any language but a classical one. The chief species to which this applies are *Cattleya labiata*, *Masdevallia Lindeni*, *Odontoglossum crispum* and *Pescatorei*, *Lycaste Skinneri*, *Cypripedium insigne* and *barbatum*; but there are numerous other species, of which two or three cultural forms have received classical names instead of the more suitable fancy names.

This does not do away with the naming of real varieties, that is with forms of plants which have certain distinguishing characteristics, which remain tolerably constant.

I take as an example of the kind of revision required the names of varieties of *Cœlogyne cristata* which I find in a recent garden catalogue. They are: *Cœlogyne cristata*, *C. c.*, Chatsworth variety; *C. c. hololeuca*, *C. c. Lemoniana*, and *C. c. maxima*.

Now of these there is only one objectionable one, and that is the last, *C. c. maxima*, for on hunting up the original description I find that its simple characteristics are that it is a little bigger than other forms. Now apart from the fact that the size of the flowers is probably due simply to an extra supply of nourishment, and would most likely diminish in the same plant again under unfavourable conditions, the mere size of the flowers is quite insufficient to distinguish one plant from another, unless there is enough difference to be stated in figures. Thus it might be ten inches across instead of three. This plant probably was not worthy of a name at all, but if it was it should have been a fancy name.

The remaining names speak for themselves. *C. cristata hololeuca* is distinct as a colour variety in the absence of the yellow patch on the lip. *C. c. Lemoniana*, again (though the error made by its original namer in imagining that *Lemoniana* meant lemon-coloured may call up a laugh at his expense), is equally unobjectionable.

In naming a new variety, therefore, the namer should think first whether he can specify in a few words the cause of distinctness in the variety—thus, *Cœlogyne cristata alba*, lip entirely white. If not, and if the difference is really so slight that words will not clearly convey it, as in many, I might also say most of the innumerable varieties of *Cattleya labiata*, the name given should be a fancy name. Professor Michael Foster, in a recent article on *Iris Cengiali*, in the *Gardeners' Chronicle*, points out that it is not of importance whether a variety of this value first appears in a garden, or in the native haunt of the typical plant; but where one plant varies so slightly from another as not to deserve a [Latin] varietal name, and yet requires some title, it should bear a fancy name. These slight modifications, in fact, are not strictly varieties at all, but forms, and one can, if requisite, break them up still lower, into sub-forms, so that a species may be divided, if necessary, into sub-species, variety, sub-variety, form and sub-form. As an example, *Cattleya labiata* is a species, *C. labiata Trianæ* a variety, *C. labiata Trianæ alba*, a sub-variety, and anything lower would be a form. Now it seems to me that it would be most advantageous to give all forms of the plant, from sub-varieties downwards, fancy names.

It is often suggested that the names of plants should be in some measure descriptive, but when put into practice this is frequently found to be unworkable. Still the namer of any plant should do his best to make the name expressive of something connected therewith, as for instance the discoverer, or the place of discovery, or the colour. Quintinye, in his "Instructions pour les Jardins," dated 1697, suggests, in treating of the names of Pinks, that the fancy names should denote the colours of the flowers. Thus he would call a grey and purple kind, the Grand Provincial, or the Grave Philosopher, or General Peter, the initial letter giving the initials of the colours in the flower. The difficulty of such a plan lies in the fact that namers never will conform to anything of the kind, and that such names are only of use in the country in which they are written.

Another very important necessity is that of regulating the nomenclature of hybrids. They are usually treated as species, and receive classical names in no way denoting their origin. In wild hybrids this is in a measure excusable, as it is frequently very difficult to discover, on finding a plant intermediate between two species, whether it is a connecting link or a natural hybrid, but in garden hybrids, the parents of which are known, it is much to be deprecated. Certain names, it is true, denote the garden origin of the plants, such as *Cattleya exoniensis* ×, and who would doubt that *Cypripedinm Sedeni* × was anything but a cultural hybrid.

The usual way in scientific works of denoting a hybrid is by compounding the name, as Carex axillari-remota. This may be shortened by cutting off portions of the two words and making a compacter name, but the only instance I can recall of this method is that of Philageria, a name invented by Dr. Masters for a hybrid between the two genera Lapageria and Philesia. This plan it seems to me should be always adopted in the case of hybrids between two genera. In some cases it would certainly be rather difficult to get a neat name compounded out of the two, but such names as Catlælia and Sophro-cattleya are not worse than many generic names, such as Cienkowskia, Warscewiczella, &c., with which we have to deal. So confused is the present nomenclature of these generic hybrids that we have known plants of which the parentage is mainly Cattleya called Lælias, as for instance, Lælia Dominiana rosea. This is stated to have been raised from Cattleya exoniensis ×, itself crossed with *C. Dowiana*;

C. exoniensis being a hybrid between C. Mossiæ and Lælia purpurata; so that there is actually only a quarter blood of Lælia in the plant, and yet it is called a Lælia.

With respect to hybrids between species the matter is more difficult, for though compounded names are possible in some cases they are not so in others, owing to the length and unwieldiness of some of the specific names. Where practicable they may be used, but in all cases where it is certain that the plant is a hybrid, a cross (×) should be always put after the name whenever printed. Where the same parents produce different forms, a fancy name could be added to the compounded name to distinguish them.

I shall be very glad if anyone can suggest anything better for the naming of hybrids. One more thing I would like to mention is with respect to the publishing of names. A great deal of confusion and difficulty has been caused by the utter irregularity with which some of the names are published. They are published first it may be on a label sent up to the Horticultural Society, and they find their way into a book, but nobody knows from whom they come, or, what is infinitely worse, to what plant they apply. Every plant which receives a name should receive it only after careful consideration and examination; and it should be published in the *Gardeners' Chronicle*, or some other scientific paper, or some well-known and easily procurable book. It is not sufficient that names are published in seed lists, trade catalogues, or such ephemeral productions, which are difficult to obtain even a year or two after publication. There is hardly a complete series of some of the seed lists, in which numerous plants have been described, in any of the libraries in England, and you will see, therefore, how difficult it is to trace plants whose names have been published in one of those seed lists. I think if some such plan of publication as I suggest were adopted, a great deal of simplification could be attained at once.

DISCUSSION.

DR. MASTERS said that some of them might wonder what possible reason he could have to say anything about Orchids, he laying no claim to any but a general knowledge of the order, and that only from a botanical point of view; but, as a botanist, he utterly declined to admit that there was any difference in principle between the nomenclature of Orchids and that of any other plants whatever. He thought one great difficulty in Orchid nomenclature had arisen from people not minding their own business. He hoped they would not accuse him of not minding his own business because he was talking of Orchids, with which he was not specially familiar; but he might illustrate what he meant. Botanists had a regular code of nomenclature, and there were rules laid down which every botanist obeyed more or less loyally. If they would all only obey them strictly, and act up to the spirit of them, all would be well. They could then find out every blunder, correct it if necessary, always have a reference at hand in case of need, and be as well off as any philological student who had his dictionary or grammar to refer to. But when he came to the gardeners and nurserymen, what did he find? He did not wish to speak disrespectfully of them in other respects, far from it, but he found that they trenched on the botanists' ground. They did not mind their own business; they gave names. Of course they had a perfect right to do this if they liked, provided their names were cast in such a form as to cause no sort of confusion between them and botanical names. If horticulturists would not adopt a system, as botanists had done, they should at least mind their own business, and not try to imitate botanical names. He would advocate, for garden plants at least, simply provisional or fancy names, and would urge that nurserymen and gardeners should on no account be allowed to give a Latin, still less a Greek name to a plant, unless accompanied by a properly drawn up description by means of which it could be recognized. If they did otherwise, they were almost certain to tumble into a botanical blunder; and in all cases they gave rise to great confusion and difficulty, because there was no standard publication in which such names were collected. This brought him to another point. The Royal Horticultural Society had a rule, which he was sorry to say was greatly more honoured in the breach than in the observance, that no plant should be shown before its Committees unless it had been properly named. He took the meaning of that to be this—that if it were considered to be a true species, it should be botanically named, and should not receive in any way the sanction of any one of the Committees until that name had been properly authenticated. Of course the authenticator might make a mistake, but in course of time the Committee would be able to find out the mistake and correct it. In the same way, let the names of garden plants be authenticated by a proper person, or by a Committee acquainted with garden plants, in the same way as botanists were supposed to be acquainted with other plants. If this system of authentication, followed by registration, were adopted, a great deal would be done towards clearing up the confusion which existed in nomenclature. He should be delighted to hear some remarks from Orchid growers present, and must therefore ask the Conference to excuse him for having intruded so long upon their attention.

Mr. ENOCH HARVEY said Dr. Masters had cleared the ground on one main point, in the distinction he had drawn between botanical names and merely horticultural garden names. He thought all must agree that the plan suggested was the right one, namely, that fancy names should be given to mere varieties. Every time a man grew a Carnation a little different from others, he wished naturally to distinguish it and called it by a fancy name. That was right enough. With regard to the distinguishing of species of botanical names, he thinks nothing can be done at present. The time for that will be hereafter. Some time it must arise. It seemed to him that during Dr. Lindley's lifetime the present plan was the one to which everybody bowed, but at present there was nothing to which everyone bowed, and they had nothing to do with the principles on which Dr. Lindley acted in the new names he gave to new species. He thought some practical work might be done in the direction Dr. Masters had just indicated. Some of the varieties which were produced were so distinct and beautiful that it was desirable that they should be distinguished; but what he urged was that there should be some competent authority empowered to name them, and he would suggest that this authority should be a Committee of the Royal Horticultural Society, who should provide themselves with drawings, dried plants, and a careful botanical description of any recognized varieties, and to whom any person growing a specimen, and not knowing to which variety to refer it, might apply for information. This information might be supplied either without charge, or on payment of a small fee. This would put an end to the plan of everybody who had got a variety to sell putting whatever name he liked upon it. It was a very humble, practical work, which would be a great convenience to horticulturalists. There ought to be some authority which would define and decide the limits of application of each name.

Mr. Shirley Hibberd said reference had been made to the labours of the Society, and they were all interested in the success of the Society as a whole, and in the perfection of the several departments of its work. The Horticultural Society was continually dealing with varieties of Orchids, much more frequently with what might be called garden varieties than with new species; and it might have occurred to many and had often occurred to himself, and Dr. Masters justified him in his opinion, that with the greater part of these garden varieties, Orchid growers, as scientific men, had absolutely nothing to do. He was glad that Dr. Masters insisted that there should be one rule for all plants, one method, one system, so that a man should not have to go to all the schools of botany. One principle should be applied, and it should be applied resolutely. It had not been applied resolutely; it had been trifled with; and he proposed to them as an Orchid Conference, as business men, that they should repudiate all garden varieties. If Mr. Blank could find an Orchid with a spot in one corner of a petal, he gave it a name and a money value, and at once sold the plant; and when he had done so, what did it matter to him what value it had in the books or annals of the Society? The Conference might simplify their labours by kicking out all these garden varieties. They could not prevent men giving plants ridiculous names. But he would tell them what they could do, and this concerned them as a Society. They could repudiate these ridiculous names when the plants came before them; and he had proposed, and he proposed again, that the hands of workers should be strengthened by a General Working Botanical Committee, which would have, of necessity, often to deal with Orchids, and to whom a worker could take a plant and say: "Is that a good species?" If the answer were "No," then he could deal with it as a garden variety. He was afraid they could never have the assistance of a vast museum of tens of thousands of dried Orchids, or a large library to refer to. Supposing they could build up such a museum and library, he didn't know where they could find the men who could go in at ten o'clock and turn to any page or specimen wanted at the moment to verify a species or variety. He thought the best museum for the Society in that case, and the best library, would be in the heads of the Committee appointed to do the work. They had men in that room who were capable of forming such a museum, and who had it, in fact, already in their heads; and the appeal to the man was better than any appeal to an Alexandrian library.

The PRESIDENT, having invited further remarks on this, or any kindred subject germane to the main question,

Mr. GOLDRING asked Mr. Ridley if he considered that the varieties of *Cattleya labiata* named *Gaskeliana*, *Percivaliana* and *Trianæ* were mere garden varieties. Mr. Ridley seemed to imply in his paper that he considered them so; but he (Mr. Goldring) did not know where they were to draw the line. He thought they must have a starting point and define the true species, and then name the varieties that had a structural difference—not merely one of colour. He could never believe that very marked sub-species, such as Percivaliana and Gaskeliana were mere varieties. Mere garden varieties they were not; they differed structurally. He was afraid that Mr. Ridley had studied dried specimens too much; and that he would have to go more to the garden. The varieties of *Cattleya labiata* were very numerous, but it seemed to him that there were about half-a-dozen very marked species or sub-species. With regard to popular names, he thought it would cause just as great a confusion as the popularizing of the names of other plants, which he thought was quite a failure except in well-known names such as the Dandelion. They would have people naming varieties all over the country. With regard to the varieties of *Cælogyne cristata*, he thought Mr. Ridley had studied dried specimens too much. If he would go into the garden he would find structural characteristics. Mr. Ridley, he believed, said that *Cælogyne cristata maxima* was merely a garden form, and that a good grower would grow a small one into a large one. He utterly denied that, because they would find that the bulb was different. One had a truncated form, and the other was somewhat globose, and no amount of growing would turn the latter into a truncated bulb. Then, again, the *Cælogyne cristata* *hololeuca* he thought was almost distinct enough to rank as a species. The flower was different, the column was different, the wings were more widely spread, and the lips were shallower; and yet Mr. Ridley called that a simple garden variety. Then as regards *Cœlogyne cristata Lemoniana*, it was distinct as regarded the colour. These should be named as botanical species. He did not know why Orchids should be singled out as being so very difficult to understand, or as being in such a confusion, because he thought if they would take other classes of plants they would find the same thing, and if they abolished botanical names for Orchids they should abolish them for all.

Mr. Ridley said that with regard to the forms of *Cattleya labiata*, which he thought was the first thing Mr. Goldring mentioned, he followed Professor Reichenbach. He never meant to say that he considered *C. Trianæ* and those distinct varieties as anything but varieties. Professor Reichenbach separated the species of *Cattleya labiata* into varieties in two ways, according to form and according to colour, so that they might take their choice. He kept the *Trianæ* and *Mossiæ*, and one or two others, separate as varieties, and he (Mr. Ridley) was quite prepared to do the same, but he could not consider them species at all, not species in the usually accepted sense of the word. As to the charge that he went simply by dried specimens, he should like it to be known that in the Natural History Museum there were, he was sorry to say, very few specimens indeed of the cultivated forms of Cattleya. He had been trying to get them. Nobody would take the trouble to dry them. They were very difficult to get; the gardeners were rather shy of cutting the flowers to make herbarium specimens. Furthermore, he was perfectly agreed with Mr. Goldring in his statement that it was very difficult to make out species of Cattleya from dried specimens. He did not go by them, but by the living plants and by drawings, and, of course, by good drawings one could go almost as well as by the living plant.

Professor Michael Foster said he felt very great diffidence in speaking on the subject, because he was absolutely ignorant of Orchids; but he also felt that Dr. Masters spoke entirely the truth when he said that this difficulty with regard to Orchids was one which was met with in the case of all plants which had to be cultivated by gardeners. He also agreed with Dr. Masters that

Latin names should not be used for so-called garden forms. He took it that a name was of use in order to denote certain distinctive characteristics. Where those characteristics were sufficiently distinctive, they constituted a species; where they were somewhat less distinctive, they constituted a sub-species; when they were less still, they constituted a variety; and in each of these cases the botanist desired to give a name. But when the differences became still less, the botanist said life was not long enough to take note of them, and passed them on one side. For all such differences as deserved the attention of botanists, he thought Latin names should be retained; but there were no two plants which, take them all in all, were actually alike, and for garden purposes they were obliged to appreciate differences less in degree than those which deserved the attention of botanists; and there came the difficulty. With regard to plants exhibiting these smaller differences, he agreed—and he thought they were nearly all agreed now—that trivial names, or at all events names not Latin, should be used for them, so that whenever a Latin name was used they would know that it denoted differences of a certain magnitude; and when it was not used they would know that those differences were of a magnitude which the botanist said he could not take cognizance of. But he could not go so far as Mr. Hibberd, and say that they should repudiate altogether the task of supervising these trivial names, which were not Latin; he could not do so, because some of them might be of very considerable importance. For, although Mr. Hibberd might be quite right in saying that Mr. Smith or Mr. Jones looked out for a spot on the petal of a plant, and then put the plant into the market, and when he had got rid of his stock, cared no more about it, it might be that Mr. Smith or Mr. Jones, in his effort to do himself good, had produced a thing which remained a joy for ever to succeeding generations. It would be a great pity if that plant had not hereafter a proper name. The name should, if possible, tell them something about it; and he did not think it was outside the powers of gardeners, by adequate care, to select names which would, at all events, tell the world something about the plant, and suggest the direction in which they were to look for its affinities and relations. However, that was a matter of detail. He only wished to make two other suggestions, somewhat of a practical nature, with regard to the naming of hybrids. He had been driven to use names for his own purposes, and he had adopted Dr. Masters' plan, making a compound of the names of the two parents, putting that of the mother first. But there was a little change which he had introduced, which he would suggest as being, possibly, useful, since it at once denoted that the plant was a hybrid; and that was to end the name with a consonant, instead of with a vowel. For instance, if Dr. Masters' *Philageria* were named *Philager* they would know at once that it was a hybrid. He quite agreed with Mr. Ridley that when the ear got accustomed to them, compound names might be used, so as not to interfere with the organs of speech—names which could be written down distinctly, and heard with fair clearness. Another point was with regard to the suggestion which had been made as to having a Registration of Plants. Here, again, he was sorry to to say he differed from Mr. Hibberd. He was always sorry to differ from that gentleman, but occasionally he felt himself obliged to do so. He did not think it was so utterly impossible as Mr. Hibberd seemed to think that the Society should have a Record and Museum of plants of horticultural value. A dried specimen did not occupy such a very large amount of room, and they had not so much material crowded into their publications that they could not find room for an adequate description and clear diagnosis of any new plant with regard to which they took the responsibility of giving a prize or authenticating a name. A very little space would really suffice for their needs, for it must be remembered that, after the lapse of a certain number of years, certain plants to which names had been given and which had run their day, would have entirely disappeared. He meant that they might have to revise their Herbarium and cast out those specimens which were of no value at all; but they would have during the time of dispute an appeal to a definite record and written description, furnished by the namer of the plant, and to dried specimens; and he ventured to think that it was the duty of the Society to publish adequate illustrations of new and important plants, so that there might be something authentic to appeal to at any subsequent time.

Mr. Lynch said he was very sorry to be under the disadvantage of not having heard all that had been said, but he must say that

Professor Foster had summed up the situation exactly to his mind. With regard to the naming of garden forms, he would suggest that a drawing should be made of every plant to which a foreign name was applied, and that its description should be published either in the *Gardeners' Chronicle* or in the *Journal of the Horticultural Society;* and any plant which did not show a difference sufficient to be ascertained by this description should not be recognized at all. One great want in connection with the Society, he thought, was what he might term a Royal Horticultural Society Garden Nomenclaturist. He thought there should be a botanist connected with the Society who would devote himself to the naming of plants, from a garden point of view, because a purely botanical point of view was not all sufficient for cultivators' purposes. They wanted, first of all, some authority to draw out a limitation of the species. He thought it might have a very great effect if the Conference would petition Professor Reichenbach to frame a summary of the work he had done in his lifetime. They would lose a great deal if he did not do it. With regard to the popular names for imported forms of Orchids. he would put them on precisely the same grounds as those raised in the country, because they occupied the same position. They had come from seeds, and he thought they also might receive popular names; for instance, Painted Lady, or something of that kind. He quite agreed with Professor Foster's view of the necessity of the Horticultural Society keeping a register of all these plants. In different parts of the country names were applied; and he would propose that the Society should not recognize names which had been brought to its notice unaccompanied by those drawings which he would recommend.

The PRESIDENT: Gentlemen, I think that although no immediate practical result may come from our conversation and discussion to-day, we have, at all events had placed before us more clearly the difficulties of the case than we have had up to the present time, and I think also we have had considerable indications of the way in which those difficulties are to be met. With regard to names, I believe men of science have up to the present time, for reasons which are not difficult to understand, chosen Latin or Greek for their descriptive names. How long that will last, I cannot undertake to say. In fact, I have a rather vague recollection that my friend Professor Foster told me he should not be astonished if before many years Greek were to be no longer one of the necessary parts, at all events, of education at Cambridge, and that leads me to suggest what I may as well say I have suggested to Professor Reichenbach, and that is, the desirability that, when a gentleman gives a plant a new name, a compound of the dead languages, the source from which he takes that name, the words from which it is compounded, and a translation into English, should also be given. We must remember that these names are used to a very large extent by gardeners who have no knowledge of the dead languages. With regard to what fell from Mr. Ridley as to *Cœlogyne cristata*, I had a large pan of pieces. We knew that in that pan there were one or two pieces—we did not know how many—of the white variety, which Mr. Goldring thinks so very distinct. They were all separated, and very great care was taken by competent persons to find any indication which would enable us to discriminate between the two. We found it impossible, and we were only able to discriminate between the two when the plants flowered; and, although I do not believe that among Orchids there are no smaller and larger varieties, I think it may be possible to cultivate the one into the other, as it certainly is possible to do the reverse—to cultivate the larger into the smaller. With regard to the reason why all these names appear, I think it is pretty well on the surface. It is the reason to which Mr. Hibberd has referred—the commercial reason; and I am bound to say I think there is a certain amount of fault to be found occasionally with our Floral Committee at South Kensington. I think they have been occasionally guilty, unknowingly, no doubt, of giving two different names and two different certificates to the same plant. Where I think they certainly err is in recognizing names and giving certificates to individual plants—to an individual plant which does, perhaps, exist in any other form except in that one plant. With regard to what constitutes a distinct variety, we have heard reference made to that several times. It is in a great measure a matter of colour, as far as my observation goes, and we are all aware that the natural energy and force which is required to produce varieties in colour is very much smaller than that required to produce varieties in form. With regard to Cattleyas, I entirely agree with Mr. Ridley, that *Cattleya labiata* is a recognized species. The names of varieties are almost invariably the names of individuals, who will in fulness of time pass away, if they have not already passed away, and we shall be inquiring who those persons were. If we endeavour to "kick out" and repudiate these various names, we shall find ourselves in almost greater difficulty than now. I entirely endorse, if I may be allowed to say so, the opinion expressed by Dr. Masters and Professor Foster, that horticulturists should keep to horticulture and botanists to botany. If we hand over the dead languages as a means by which genera, species, and, if necessary, varieties, are to be described by botanists, we shall get a general distinction which will be of great value. You have heard what Mr. Ridley has said about the difficulty of getting flowers for preservation. Now I am most anxious that the perfectly unique Herbarium, which has been collected together by Professor Reichenbach, should still get reinforcements of novelties from this country; but, at the same time I venture to say, that as patriotic Englishmen we should do all we can to help our great Natural History Museum at South Kensington, and the Herbarium of the Royal Gardens at Kew. It is not, after all, a great sacrifice if you have looked at your flowers for three or four days, while it is certainly beneficial to the plants, to cut the flowers; and now that Mr. Ridley has thrown himself, I may say, on the compassion and generosity of Orchid growers, I trust that his appeal will not be made in vain. I shall venture, at all events, to trouble him with more flowers than I have done up to the present time, in the hope that he will throw into the waste-paper basket those which he does not require, and in the hope that there may be something which will be of advantage to him.

Thanks having, on the motion of Mr. HARVEY, been cordially voted to Sir Trevor Lawrence for his kindness in presiding, the proceedings closed.

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